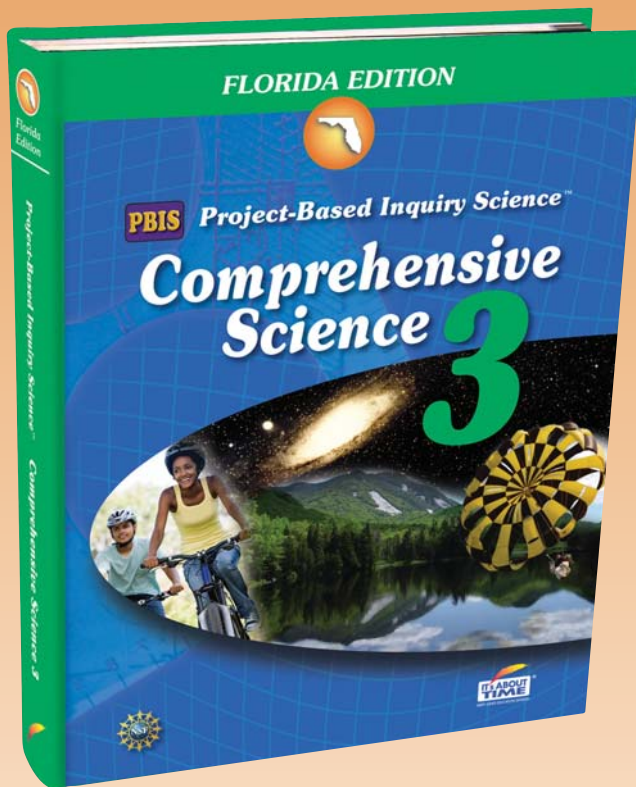




## Florida Edition

# Project-Based Inquiry Science Comprehensive Science 3

**CORRELATION  
FLORIDA DEPARTMENT OF EDUCATION  
INSTRUCTIONAL MATERIALS CORRELATION  
COURSE STANDARDS**



Subject:	Science
Grade Level:	6–8
Course Title:	M/J Comprehensive Science 3
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**Correlation of  
Florida Next Generation Sunshine State Standards  
to  
Project-Based Inquiry Science: Comprehensive 2**

Florida Next Generation Sunshine State Standards	<i>Project-Based Inquiry Science: Comprehensive Science 3</i>
Scheme and Descriptor	
<b>Strand: Literary Analysis</b>	
<b>Standard 2:</b> Nonfiction	
<p><b>LA.8.2.2.3</b> The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, or comparing/contrasting).</p>	<p><b>Diving Into Science</b> LS1: pp. 18-19 LS2: p. 26 LS3: pp. 36, 38-39, 41, 42, 56, 61-62, 64-65, 66-67 LS4: pp. 72, 73, 81-82, 88-89, 91-92, 99</p> <p><b>Air Quality</b> Introduction: pp. 12-15, 17-18 LS1: pp. 20-22, 23, 34, 36-37, 38-40, 48, 50, 56, 58 LS2: pp. 63, 65, 77, 87, 96, 104, 113, 115-116 LS3: pp. 118, 125, 127, 131, 134, 147, 156, 165, 170-171, 172-173, 176-177, 184, 186 LS4: pp. 191, 195, 201, 205-206, 211-212, 221, 224, 246-248, 252-256, 258-259, 262 LS5: pp. 267, 292-293, 302, 304 Answer the Big Question: pp. 313-316</p> <p><b>Astronomy</b> LS1: pp. 10-12, 15-17, 38, 45, 49, 56, 61-64 LS2: pp. 67, 71, 78-79, 83, 85, 96, 108, 112, 116, 118 LS3: pp. 123, 125, 131, 135, 145, 165-166 LS4: pp. 172, 191, 194, 208, 211, 224 Answer the Big Question: pp. 225-227</p>

**Scheme and Descriptor**

**Strand: Writing Applications**

**Standard 2: Informative**

**LA.8.4.2.2.**

The student will record information (e.g., observations, notes, lists, charts, legends) related to a topic, including visual aids to organize and record information, as appropriate, and attribute sources of information

**Diving Into Science**

LS1: pp. 9-10, 18-19, 21-22  
LS3: pp. 36, 38-39, 41, 56, 61-62, 64-65, 66-67  
LS4: pp. 72, 73, 81-82, 91-92, 95-96, 98, 99

**Air Quality**

Introduction: pp. 12-15, 17-18  
LS1: pp. 20-22, 23, 34, 36-37, 38-40, 48, 50, 56, 58  
LS2: pp. 63, 65, 77, 87, 96, 104, 113, 115-116  
LS3: pp. 118, 125, 127, 131, 134, 147, 156, 165, 170-171, 172-173, 176-177, 184, 186  
LS4: pp. 191, 195, 201, 205-206, 211-212, 221, 224, 246-248, 252-256, 258-259, 262  
LS5: pp. 267, 292-293, 302, 304  
Answer the Big Question: pp. 313-316

**Astronomy**

Introduction: pp. 10-12  
LS1: pp. 15-17, 38, 45, 49, 56, 61-64  
LS2: pp. 67, 71, 78-79, 83, 85, 96, 108, 112, 116, 118  
LS3: pp. 123, 125, 131, 135, 145, 165-166  
LS4: pp. 172, 191, 194, 208, 211, 224  
Answer the Big Question: pp. 226-227

**Big Idea 3: Write, interpret, and use mathematical expressions and equations.**

**MA.6.A.3.6**

Construct and analyze tables, graphs, and equations to describe linear functions and other simple relations using both common language and algebraic notation.

**Diving Into Science**

LS2: pp. 27-28, 32

**Air Quality**

LS2: p. 64

**Astronomy**

LS3: pp. 129-130  
Using Mathematics to Record and Analyze Data

**Big Idea 5: Earth in Space and Time**

The origin and eventual fate of the Universe still remains one of the greatest questions in science. Gravity and energy influence the formation of galaxies, including our own Milky Way galaxy, stars, the planetary systems, and Earth. Humankind's need to explore continues to lead to the development of knowledge and understanding of the nature of the Universe.

**SC.8.E.5.1**

Recognize that there are enormous distances between objects in space and apply our knowledge of light and space travel to understand this distance.

**Astronomy**

LS3: pp. 126, 131, 133-135  
LS4: pp. 183-187, 188-193, 195-196

**SC.8.E.5.2**

Recognize that the universe contains many billions of galaxies and that each galaxy contains many billions of stars.

**Astronomy**

LS4: pp. 205-206, 209

<b>Florida Next Generation Sunshine State Standards</b>	<b><i>Project-Based Inquiry Science: Comprehensive Science 3</i></b>
<b>Scheme and Descriptor</b>	
<b>SC.8.E.5.3</b> Distinguish the hierarchical relationships between planets and other astronomical bodies relative to solar system, galaxy, and universe, including distance, size, and composition.	<b>Astronomy</b> LS1: pp. 50-53 LS3: pp. 126-130, 135
<b>SC.8.E.5.4</b> Explore the Law of Universal Gravitation by explaining the role that gravity plays in the formation of planets, stars, and solar systems and in determining their motions.	<b>Astronomy</b> LS3: pp. 140-141
<b>SC.8.E.5.5</b> Describe and classify specific physical properties of stars: apparent magnitude (brightness), temperature (color), size, and luminosity (absolute brightness).	<b>Astronomy</b> LS4: pp. 176-181, 185-186, 198-199, 201-204
<b>SC.8.E.5.6</b> Create models of solar properties including: rotation, structure of the Sun, convection, sunspots, solar flares, and prominences.	<b>Astronomy</b> LS2: pp. 73-75, 108-111 LS3: pp. 126-134
<b>SC.8.E.5.7</b> Compare and contrast the properties of objects in the Solar System including the Sun, planets, and moons to those of Earth, such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions.	<b>Astronomy</b> LS1: pp. 39-41, 42-44, 47-48, 50-51, 54, 58-59 LS2: pp. 97, 101-103, 108-111, 113-114 LS3: pp. 121, 156-161, 163-164
<b>SC.8.E.5.8</b> Compare various historical models of the Solar System, including geocentric and heliocentric.	<b>Astronomy</b> LS3: pp. 146-147, 151-154
<b>SC.8.E.5.9</b> Explain the impact of objects in space on each other including: <ol style="list-style-type: none"> <li>1. the sun on the Earth including seasons and gravitational attraction</li> <li>2. the Moon on the Earth, including phases, tides, and eclipses, and the relative position of each body.</li> </ol>	<b>Astronomy</b> LS2: pp. 66-70, 72, 80-81, 82-84, 86-88, 93-94, 105-106, 108-111, 113-114 LS3: pp. 138, 140-141
<b>SC.8.E.5.10</b> Assess how technology is essential to science for such purposes as access to outer space and other remote locations, sample collection, measurement, data collection and storage, computation, and communication of information.	<b>Astronomy</b> LS1: pp. 18, 29-32, 33-36 LS4: pp. 167-168, 169, 206, 210, 212-217, 219-222

Florida Next Generation Sunshine State Standards	Project-Based Inquiry Science: Comprehensive Science 3
Scheme and Descriptor	
<p><b>SC.8.E.5.11</b> Identify and compare characteristics of the electromagnetic spectrum such as wavelength, frequency, use, and hazards and recognize its application to an understanding of planetary images and satellite photographs.</p>	<p><b>Astronomy</b> LS4: pp. 189-190, 192, 195-196</p>
<p><b>SC.8.E.5.12</b> Summarize the effects of space exploration on the economy and culture of Florida.</p>	<p><b>Astronomy</b> LS4: pp. 219-222</p>
<p><b>Big Idea 8: Properties of Matter</b></p>	
<p><b>A:</b> All objects and substances in the world are made of matter. Matter has two fundamental properties: matter takes up space and matter has mass which gives it inertia.</p>	
<p><b>B:</b> Objects and substances can be classified by their physical and chemical properties. Mass is the amount of matter (or “stuff”) in an object. Weight, on the other hand, is the measure of force of attraction (gravitational force) between an object and Earth.</p>	
<p><b>C:</b> The concepts of mass and weight are complicated and potentially confusing to elementary students. Hence, the more familiar term of “weight” is recommended for use to stand for both mass and weight in grades K-5. By grades 6-8, students are expected to understand the distinction between mass and weight, and use them appropriately.</p>	
<p><b>SC.8.P.8.1</b> Explore the scientific theory of atoms (also known as atomic theory) by using models to explain the motion of particles in solids, liquids, and gases.</p>	<p><b>Air Quality</b> LS1: pp. 47-49</p>
<p><b>SC.8.P.8.2</b> Differentiate between weight and mass recognizing that weight is the amount of gravitational pull on an object and is distinct from, though proportional to, mass.</p>	<p><b>Air Quality</b> LS1: pp. 31, 35</p>
<p><b>SC.8.P.8.3</b> Explore and describe the densities of various materials through measurement of their masses and volumes.</p>	<p><b>Air Quality</b> LS3: pp. 172-178</p>
<p><b>SC.8.P.8.4</b> Classify and compare substances on the basis of characteristic physical properties that can be demonstrated or measured; for example, density, thermal or electrical conductivity, solubility, magnetic properties, melting and boiling points, and know that these properties are independent of the amount of the sample.</p>	<p><b>Air Quality</b> LS1: pp. 38-41, 51-53 LS3: pp. 172-180 LS4: pp. 226-239</p>
<p><b>SC.8.P.8.5</b> Recognize that there are a finite number of elements and that their atoms combine in a multitude of ways to produce compounds that make up all of the living and nonliving things that we encounter.</p>	<p><b>Air Quality</b> LS1: pp. 38, 50</p>

<b>Florida Next Generation Sunshine State Standards</b>	<b><i>Project-Based Inquiry Science: Comprehensive Science 3</i></b>
<b>Scheme and Descriptor</b>	
<b>SC.8.P.8.6</b> Recognize that elements are grouped in the periodic table according to similarities of their properties.	<b>Air Quality</b> LS2: pp. 97-98 LS4: pp. 238-239, 241
<b>SC.8.P.8.7</b> Explore the scientific theory of atoms (also known as atomic theory) by recognizing that atoms are the smallest unit of an element and are composed of sub-atomic particles (electrons surrounding a nucleus containing protons and neutrons).	<b>Air Quality</b> LS2: pp. 89-91, 92-93, 95 LS4: pp. 214-215
<b>SC.8.P.8.8</b> Identify basic examples of and compare and classify the properties of compounds, including acids, bases, and salts.	<b>Air Quality</b> LS4: pp. 214-216, 218-224, 226-239
<b>SC.8.P.8.9</b> Distinguish among mixtures (including solutions) and pure substances.	<b>Air Quality</b> LS2: pp. 61-62, 63-64, 70-76, 111 LS5: pp. 277-283
<b>Big Idea 9: Changes in Matter</b>	
<b>A:</b> Matter can undergo a variety of changes.	
<b>B:</b> When matter is changed physically, generally no changes occur in the structure of the atoms or molecules composing the matter.	
<b>C:</b> When matter changes chemically, a rearrangement of bonds between the atoms occurs. This results in new substances with new properties.	
<b>SC.8.P.9.1</b> Explore the law of conservation of mass by demonstrating and concluding that mass is conserved when substances undergo physical and chemical changes.	<b>Air Quality</b> LS3: pp. 141, 149-150
<b>SC.8.P.9.2</b> Differentiate between physical changes and chemical changes.	<b>Air Quality</b> LS2: pp. 102-103
<b>SC.8.P.9.3</b> Investigate and describe how temperature influences chemical changes.	<b>Air Quality</b> LS3: p. 139
<b>Big Idea 18: Matter and Energy Transformations</b>	
<b>A:</b> Living things all share basic needs for life.	
<b>B:</b> Living organisms acquire the energy they need for life processes through various metabolic pathways (photosynthesis and cellular respiration).	
<b>C:</b> Matter and energy are recycled through cycles such as the carbon cycle.	

<b>Florida Next Generation Sunshine State Standards</b>	<b><i>Project-Based Inquiry Science: Comprehensive Science 3</i></b>
<b>Scheme and Descriptor</b>	
<b>SC.8.L.18.1</b> Describe and investigate the process of photosynthesis, such as the roles of light, carbon dioxide, water and chlorophyll; production of food; release of oxygen.	<b>Air Quality</b> LS2: pp. 71-72, 79
<b>SC.8.L.18.2</b> Describe and investigate how cellular respiration breaks down food to provide energy and releases carbon dioxide.	<b>Air Quality</b> LS2: pp. 71-74, 79
<b>SC.8.L.18.3</b> Construct a scientific model of the carbon cycle to show how matter and energy are continuously transferred within and between organisms and their physical environment.	<b>Air Quality</b> LS2: pp. 78-81
<b>SC.8.L.18.4</b> Cite evidence that living systems follow the Laws of Conservation of Mass and Energy.	<b>Air Quality</b> LS3: pp. 149-150
<b>Big Idea 1: The Practice of Science</b>	
<b>A:</b> Scientific inquiry is a multifaceted activity: The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.	
<b>B:</b> The processes of science frequently do not correspond to the traditional portrayal of “the scientific method.”	
<b>C:</b> Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.	
<b>D:</b> Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.	
<b>SC.8.N.1.1</b> Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.	<b>Air Quality</b> LS1: pp. 38-41, 45, 47-48, 51-54, 38-41, 47-49 LS2: pp. 89-96 LS3: pp. 161-171, 172-180 LS4: pp. 225-228, 231-237  <b>Astronomy</b> LS1: pp. 21-27
<b>SC.8.N.1.2</b> Design and conduct a study using repeated trials and replication.	<b>Diving Into Science</b> LS2: pp.30 LS3: p. 47 LS4: pp. 76-80
<b>SC.8.N.1.3</b> Use phrases such as “results support” or “fail to support” in science, understanding that science does not offer conclusive ‘proof’ of a knowledge claim.	<b>What Is Science?</b> WS pp. 3-5

Florida Next Generation Sunshine State Standards	<i>Project-Based Inquiry Science: Comprehensive Science 3</i>
Scheme and Descriptor	
<p><b>SC.8.N.1.4</b> Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data.</p>	<p><b>What Is Science?</b> WS p. 1-2</p>
<p><b>SC.8.N.1.5</b> Analyze the methods used to develop a scientific explanation as seen in different fields of science.</p>	<p><b>Air Quality</b> LS1: pp. 67-68</p>
<p><b>SC.8.N.1.6</b> Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected evidence.</p>	<p><b>Diving In</b> LS1: pp. 20-22 LS3: pp. 40-41, 47-48, 52, 57-62, 63-65, 68</p> <p><b>Air Quality</b> LS1: pp. 32-33, 34 LS2: pp. 113-114 LS3: pp. 118, 125-126, 127, 163-171, 172-180, 181-184 LS4: pp. 197-201, 225-237 Answer the Big Question: pp. 309-316</p> <p><b>Astronomy</b> LS1: pp. 21-25, 42-46 LS2: pp. 73-78, 82-85, 88-93 LS4: pp. 223-224 Answer the Big Question: pp. 225-228</p>
<p><b>Big Idea 2: The Characteristics of Scientific Knowledge</b></p>	
<p><b>A:</b> Scientific knowledge is based on empirical evidence, and is appropriate for understanding the natural world, but it provides only a limited understanding of the supernatural, aesthetic, or other ways of knowing, such as art, philosophy, or religion.</p>	
<p><b>B:</b> Scientific knowledge is durable and robust, but open to change.</p>	
<p><b>C:</b> Because science is based on empirical evidence it strives for objectivity, but as it is a human endeavor the processes, methods, and knowledge of science include subjectivity, as well as creativity and discovery.</p>	
<p><b>SC.8.N.2.1</b> Distinguish between scientific and pseudoscientific ideas.</p>	<p><b>What Is Science?</b> WS p. 5</p>
<p><b>SC.8.N.2.2</b> Discuss what characterizes science and its methods.</p>	<p><b>What Is Science?</b> WS pp. 1-5</p> <p><b>Diving Into Science</b> LS1: pp. 23-24 LS2: p. 34 LS4: pp. 102-103</p>

Florida Next Generation Sunshine State Standards	<i>Project-Based Inquiry Science: Comprehensive Science 3</i>	
Scheme and Descriptor		
<p><b>Big Idea 3: The Role of Theories, Laws, Hypotheses, and Models</b>            The terms that describe examples of scientific knowledge, for example: “theory,” “law,” “hypothesis,” and “model” have very specific meanings and functions within science.</p>		
<p><b>SC.8.N.3.1</b>            Select models useful in relating the results of their own investigations.</p>	<p><b>Air Quality</b>            LS1: pp. 38-41, 47-49</p>	<p><b>Astronomy</b>            LS1: pp. 21-24            LS2: pp. 98, 100, 107-108, 111-112            LS3: pp. 128-131, 138-139</p>
<p><b>SC.8.N.3.2</b>            Explain why theories may be modified but are rarely discarded.</p>	<p><b>What Is Science?</b>            WS pp. 4-5</p>	
<p><b>Big Idea 4: Science and Society</b>            As tomorrow’s citizens, students should be able to identify issues about which society could provide input, formulate scientifically investigable questions about those issues, construct investigations of their questions, collect and evaluate data from their investigations, and develop scientific recommendations based upon their findings.</p>		
<p><b>SC.8.N.4.1</b>            Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels.</p>	<p><b>What Is Science?</b>            WS p. 6</p>	<p><b>Air Quality</b>            LS5: pp. 263, 264-268, 275, 294-296, 301-303            Answer the Big Question: pp. 309, 312-314</p>
<p><b>SC.8.N.4.2</b>            Explain how political, social, and economic concerns can affect science, and vice versa.</p>	<p><b>What Is Science?</b>            WS p. 6</p> <p><b>Air Quality</b>            LS3: pp. 181, 184-185            LS5: pp. 275, 287-293</p>	

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contact your area representative for more information:*

**Mary-Lynn Jensen, Ph.D.**

**[mkjensen@herffjones.com](mailto:mkjensen@herffjones.com)**

**Toll Free: 888-435-8463**

**Mobile: 407-963-6107**

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**Pat Brzycki**

**[pabrzycki@herffjones.com](mailto:pabrzycki@herffjones.com)**

**Mobile: 941-228-1765**

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