



## Next Generation Sunshine State Standards for Science Correlation to *PhD Science*®

 Green indicates that *PhD Science*® fully addresses the standard within the grade level.

 Blue indicates that *PhD Science* covers the standard but in a different grade level.




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**Key:** Module (M), Lesson (L)

### *PhD Science* Level K

The Grade K Next Generation Sunshine State Standards for Science are partially covered by the *PhD Science* K–2 curriculum. A detailed analysis of alignment appears in the table below.


Grade K Standards		
Life Science		Aligned <i>PhD Science</i> Lessons
<b>SC.K.L.14 Organization and Development of Living Organism</b>		
A. All plants and animals, including humans, are alike in some ways and different in others.		
B. All plants and animals, including humans, have internal parts and external structures that function to keep them alive and help them grow and reproduce.		
C. Humans can better understand the natural world through careful observation.		
SC.K.L.14.1	Recognize the five senses and related body parts.	 Level 2 M1 L1–7, 17–18
SC.K.L.14.2	Recognize that some books and other media portray animals and plants with characteristics and behaviors they do not have in real life.	
SC.K.L.14.3	Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do.	 Level K M3 L4–16, 19–22, 27–29


Physical Science		Aligned <i>PhD Science</i> Lessons
<b>SC.K.P.8 Properties of Matter</b>		
A. All objects and substances in the world are made of matter. Matter has two fundamental properties: Matter takes up space and matter has mass. B. Objects and substances can be classified by their physical and chemical properties.		
SC.K.P.8.1	Sort objects by observable properties, such as size, shape, color, temperature (hot or cold), weight (heavy or light), and texture.	Level 2 M1 L1–9, 12–16, 19, 23, 29–31 Level 2 M2 L3–4, 14–17
<b>SC.K.P.9 Changes in Matter</b>		Aligned <i>PhD Science</i> Lessons
A. Matter can undergo a variety of changes. B. Matter can be changed physically or chemically.		
SC.K.P.9.1	Recognize that the shape of materials such as paper and clay can be changed by cutting, tearing, crumpling, smashing, or rolling.	Level 2 M1 L10–11, 29–31 Level 2 M2 L3–4, 8–13, 22–24
<b>SC.K.P.10 Forms of Energy</b>		Aligned <i>PhD Science</i> Lessons
A. Energy is involved in all physical processes and is a unifying concept in many areas of science. B. Energy exists in many forms and has the ability to do work or cause a change.		
SC.K.P.10.1	Observe that things that make sound vibrate.	Level 1 M3 L1–17, 26–29
<b>SC.K.P.12 Motion of Objects</b>		Aligned <i>PhD Science</i> Lessons
A. Motion is a key characteristic of all matter that can be observed, described, and measured. B. The motion of objects can be changed by forces.		
SC.K.P.12.1	Investigate that things move in different ways, such as fast, slow.	Level K M2 L1–23
<b>SC.K.P.13 Forces and Changes in Motion</b>		Aligned <i>PhD Science</i> Lessons
A. It takes energy to change the motion of objects. B. Energy change is understood in terms of forces—pushes or pulls. C. Some forces act through physical contact, while others act at a distance.		
SC.K.P.13.1	Observe that a push or a pull can change the way an object is moving.	Level K M2 L1–23

<b>Earth and Space Science</b>		
<b>SC.K.E.5 Earth in Space and Time</b>		<b>Aligned <i>PhD Science</i> Lessons</b>
Humans continue to explore Earth's place in space. Gravity and energy influence the formation of galaxies, including our own Milky Way Galaxy, stars, the Solar System, and Earth. Humankind's need to explore continues to lead to the development of knowledge and understanding of our Solar System.		
SC.K.E.5.1	Explore the Law of Gravity by investigating how objects are pulled toward the ground unless something holds them up.	Level 3 M4 L10–18, 28–30
SC.K.E.5.2	Recognize the repeating pattern of day and night.	Level 1 M4 L1–25
SC.K.E.5.3	Recognize that the Sun can only be seen in the daytime.	Level 1 M4 L4–6
SC.K.E.5.4	Observe that sometimes the Moon can be seen at night and sometimes during the day.	Level 1 M4 L4–6, 19–21
SC.K.E.5.5	Observe that things can be big and things can be small as seen from Earth.	Level 5 M4 L18–19, 24–26
SC.K.E.5.6	Observe that some objects are far away and some are nearby as seen from Earth.	Level 5 M4 L18–19, 24–26
<b>Nature of Science</b>		
<b>SC.K.N.1 The Practice of Science</b>		<b>Aligned <i>PhD Science</i> Lessons</b>
<p>A: 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.</p> <p>B: The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."</p> <p>C: Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.</p> <p>D: 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.</p>		
SC.K.N.1.1	Collaborate with a partner to collect information.	Level K M2 L7–8, 10–15 Level K M3 L4–8
SC.K.N.1.2	Make observations of the natural world and know that they are descriptors collected using the five senses.	Level K M1 L4–7, 10–11, 17–24, 27–30 Level K M2 L7–8, 16–23 Level K M3 L21

SC.K.N.1.3	Keep records as appropriate—such as pictorial records—of investigations conducted.		Level K M1 L4–7, 22–24 Level K M2 L4–8, 21–23 Level K M3 L1–3, 9–16 Level K M4 L1-2, 6–7, 10, 14–17, 20–24, 26–28
SC.K.N.1.4	Observe and create a visual representation of an object which includes its major features.		Level K M1 L1–2, 12–16 Level K M2 L1–3, 10–12 Level K M3 L1–3, 9–12, 19–20 Level K M4 L1–9, 11–16
SC.K.N.1.5	Recognize that learning can come from careful observation.		Level K M3 L4–8, 14–20, 22–26 Level K M4 L25

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**Key:** Module (M), Lesson (L)

### *PhD Science* Level 1

The Grade 1 Next Generation Sunshine State Standards for Science are partially covered by the *PhD Science* K–2 curriculum. A detailed analysis of alignment appears in the table below.

Grade 1 Standards			Aligned <i>PhD Science</i> Lessons
Life Science			
<b>SC.1.L.14 Organization and Development of Living Organisms</b>			
A. All plants and animals, including humans, are alike in some ways and different in others.			
B. All plants and animals, including humans, have internal parts and external structures that function to keep them alive and help them grow and reproduce.			
C. Humans can better understand the natural world through careful observation.			
SC.1.L.14.1	Make observations of living things and their environment using the five senses.		Level 2 M4 L1–3, 7–25
SC.1.L.14.2	Identify the major parts of plants, including stem, roots, leaves, and flowers.		Level 1 M1 L1–15, 27–29
SC.1.L.14.3	Differentiate between living and nonliving things.		Level K M3 L1–3, 9–29 Level K M4 L1–5, 8–9, 11–16


<b>SC.1.L.16 Heredity and Reproduction</b>		<b>Aligned <i>PhD Science</i> Lessons</b>
<p>A. Offspring of plants and animals are similar to, but not exactly like, their parents or each other.</p> <p>B. Life cycles vary among organisms, but reproduction is a major stage in the life cycle of all organisms.</p>		
SC.1.L.16.1	Make observations that plants and animals closely resemble their parents, but variations exist among individuals within a population.	Level 1 M1 L22–23, 26–29
<b>SC.1.L.17 Interdependence</b>		<b>Aligned <i>PhD Science</i> Lessons</b>
<p>A. Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs.</p> <p>B. Both human activities and natural events can have major impacts on the environment.</p> <p>C. Energy flows from the Sun through producers to consumers.</p>		
SC.1.L.17.1	Through observation, recognize that all plants and animals, including humans, need the basic necessities of air, water, food, and space.	Level K M3 L1–3, 9–29 Level K M4 L1–5, 8–9, 11–16
<b>Physical Science</b>		
<b>SC.1.P.8 Properties of Matter</b>		<b>Aligned <i>PhD Science</i> Lessons</b>
<p>A. All objects and substances in the world are made of matter. Matter has two fundamental properties: Matter takes up space and matter has mass.</p> <p>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>		
SC.1.P.8.1	Sort objects by observable properties, such as size, shape, color, temperature (hot or cold), weight (heavy or light), texture, and whether objects sink or float.	Level 2 M1 L1–9, 12–16, 19, 23, 29–31 Level 2 M2 L3–4, 14–17
<b>SC.1.P.12 Motion of Objects</b>		<b>Aligned <i>PhD Science</i> Lessons</b>
<p>A. Motion is a key characteristic of all matter that can be observed, described, and measured.</p> <p>B. The motion of objects can be changed by forces.</p>		
SC.1.P.12.1	Demonstrate and describe the various ways that objects can move, such as in a straight line, zigzag, back-and-forth, round-and-round, fast, and slow.	Level K M2 L1–23


<b>SC.1.P.13 Forces and Changes in Motion</b>		<b>Aligned <i>PhD Science</i> Lessons</b>
<p>A. It takes energy to change the motion of objects.                      B. Energy change is understood in terms of forces—pushes or pulls.                      C. Some forces act through physical contact, while others act at a distance.</p>		
SC.1.P.13.1	Demonstrate that the way to change the motion of an object is by applying a push or a pull.	Level K M2 L17–23
<b>Earth and Space Science</b>		
<b>SC.1.E.5 Earth in Space and Time</b>		<b>Aligned <i>PhD Science</i> Lessons</b>
<p>Humans continue to explore Earth's place in space. Gravity and energy influence the formation of galaxies, including our own Milky Way Galaxy, stars, the Solar System, and Earth. Humankind's need to explore continues to lead to the development of knowledge and understanding of our Solar System.</p>		
SC.1.E.5.1	Observe and discuss that there are more stars in the sky than anyone can easily count and that they are not scattered evenly in the sky.	Level 1 M4 L1–8, 14–25
SC.1.E.5.2	Explore the Law of Gravity by demonstrating that Earth's gravity pulls any object on or near Earth toward it even though nothing is touching the object.	Level 3 M4 L10–18, 28–30
SC.1.E.5.3	Investigate how magnifiers make things appear bigger and help people see things they could not see without them.	Level 1 M4 L14–16
SC.1.E.5.4	Identify the beneficial and harmful properties of the Sun.	Level 1 M2 L13–14
<b>SC.1.E.6 Earth Structures</b>		<b>Aligned <i>PhD Science</i> Lessons</b>
<p>Humans continue to explore the composition and structure of the surface of the Earth. External sources of energy have continuously altered the features of Earth by means of both constructive and destructive forces. All life, including human civilization, is dependent on Earth's water and natural resources.</p>		
SC.1.E.6.1	Recognize that water, rocks, soil, and living organisms are found on Earth's surface.	Level 2 M2 L1–2, 5–6 Level 2 M4 L1–6, 11–16, 20–21, 23–25
SC.1.E.6.2	Describe the need for water and how to be safe around water.	
SC.1.E.6.3	Recognize that some things in the world around us happen fast and some happen slowly.	Level 2 M2 L18–24

Nature of Science			Aligned <i>PhD Science</i> Lessons
SC.1.N.1 The Practice of Science			
<p>A: 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.</p> <p>B: The processes of science frequently do not correspond to the traditional portrayal of “the scientific method.”</p> <p>C: Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.</p> <p>D: 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.</p>			
SC.1.N.1.1	Raise questions about the natural world, investigate them in teams through free exploration, and generate appropriate explanations based on those explorations.		Level 1 M1 L1–3 Level 1 M2 L1–3 Level 1 M3 L1–3 Level 1 M4 L1–3, 14–16
SC.1.N.1.2	Using the five senses as tools, make careful observations; describe objects in terms of number, shape, texture, size, weight, color, and motion; and compare their observations with others.		Level 1 M2 L4–12, 15–18, 20–23 Level 1 M3 L1–7, 11–13, 18–19 Level 1 M4 L4–6, 14–16, 19–21
SC.1.N.1.3	Keep records as appropriate—such as pictorial and written records—of investigations conducted.		Level 1 M1 L10
SC.1.N.1.4	Ask “how do you know?” in appropriate situations.		Level K M1 L8–9 Level K M3 L4–8, 22 Level 2 M3 L3–6



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### *PhD Science* Level 2

The Grade 2 Next Generation Sunshine State Standards for Science are partially covered by the *PhD Science* K–2 curriculum. A detailed analysis of alignment appears in the table below.

Grade 2 Standards		
Life Science		
SC.2.L.14 Organization and Development of Living Organisms		Aligned <i>PhD Science</i> Lessons
A. All plants and animals, including humans, are alike in some ways and different in others.		
B. All plants and animals, including humans, have internal parts and external structures that function to keep them alive and help them grow and reproduce.		
C. Humans can better understand the natural world through careful observation.		
SC.2.L.14.1	Distinguish human body parts (brain, heart, lungs, stomach, muscles, and skeleton) and their basic functions.	
SC.2.L.16 Heredity and Reproduction		Aligned <i>PhD Science</i> Lessons
A. Offspring of plants and animals are similar to, but not exactly like, their parents or each other.		
B. Life cycles vary among organisms, but reproduction is a major stage in the life cycle of all organisms.		
SC.2.L.16.1	Observe and describe major stages in the life cycles of plants and animals, including beans and butterflies.	 Level 3 M2 L17, 19

<b>SC.2.L.17 Interdependence</b>		<b>Aligned <i>PhD Science</i> Lessons</b>
<p>A. Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs.</p> <p>B. Both human activities and natural events can have major impacts on the environment.</p> <p>C. Energy flows from the Sun through producers to consumers.</p>		
SC.2.L.17.1	Compare and contrast the basic needs that all living things, including humans, have for survival.	Level K M3 L4–16, 19–22, 27–29
SC.2.L.17.2	Recognize and explain that living things are found all over Earth, but each is only able to live in habitats that meet its basic needs.	Level 2 M4 L1–3, 7–25
<b>Physical Science</b>		
<b>SC.2.P.8 Properties of Matter</b>		<b>Aligned <i>PhD Science</i> Lessons</b>
<p>A. All objects and substances in the world are made of matter. Matter has two fundamental properties: matter takes up space and matter has mass.</p> <p>B. Objects and substances can be classified by their physical and chemical properties.</p>		
SC.2.P.8.1	Observe and measure objects in terms of their properties, including size, shape, color, temperature, weight, texture, sinking or floating in water, and attraction and repulsion of magnets.	Level 2 M1 L1–9, 12–16, 19, 23, 29–31 Level 2 M2 L3–4, 14–17
SC.2.P.8.2	Identify objects and materials as solid, liquid, or gas.	Level 2 M1 L1–16, 19, 23, 29–31 Level 2 M2 L3–4, 14–17
SC.2.P.8.3	Recognize that solids have a definite shape and that liquids and gases take the shape of their container.	Level 2 M1 L1–16, 19, 23, 29–31 Level 2 M2 L3–4, 14–17
SC.2.P.8.4	Observe and describe water in its solid, liquid, and gaseous states.	Level 2 M4 L1–6, 16, 22–25
SC.2.P.8.5	Measure and compare temperatures taken every day at the same time.	Level K M1 L1–11, 17–24, 28–30 Level K M4 L25
SC.2.P.8.6	Measure and compare the volume of liquids using containers of various shapes and sizes.	Level 2 M4 L8–9

<b>SC.2.P.9 Changes in Matter</b>		<b>Aligned <i>PhD Science</i> Lessons</b>
A. Matter can undergo a variety of changes. B. Matter can be changed physically or chemically.		
SC.2.P.9.1	Investigate that materials can be altered to change some of their properties, but not all materials respond the same way to any one alteration.	Level 2 M1 L1–9, 12–19, 23, 29–31 Level 2 M2 L3–4, 14–17
<b>SC.2.P.10 Forms of Energy</b>		<b>Aligned <i>PhD Science</i> Lessons</b>
A. Energy is involved in all physical processes and is a unifying concept in many areas of science. B. Energy exists in many forms and has the ability to do work or cause a change.		
SC.2.P.10.1	Discuss that people use electricity or other forms of energy to cook their food, cool or warm their homes, and power their cars.	
<b>SC.2.P.13 Forces and Changes in Motion</b>		<b>Aligned <i>PhD Science</i> Lessons</b>
A. It takes energy to change the motion of objects. B. Energy change is understood in terms of forces—pushes or pulls. C. Some forces act through physical contact, while others act at a distance.		
SC.2.P.13.1	Investigate the effect of applying various pushes and pulls on different objects.	Level 3 M4 L1–9, 28–30
SC.2.P.13.2	Demonstrate that magnets can be used to make some things move without touching them.	Level 3 M4 L19–21, 28–30
SC.2.P.13.3	Recognize that objects are pulled toward the ground unless something holds them up.	Level 3 M4 L19–21, 28–30
SC.2.P.13.4	Demonstrate that the greater the force (push or pull) applied to an object, the greater the change in motion of the object.	Level 3 M4 L1–9, 28–30
<b>Earth and Space Science</b>		
<b>SC.2.E.6 Earth Structures</b>		<b>Aligned <i>PhD Science</i> Lessons</b>
Humans continue to explore the composition and structure of the surface of Earth. External sources of energy have continuously altered the features of Earth by means of both constructive and destructive forces. All life, including human civilization, is dependent on Earth’s water and natural resources.		
SC.2.E.6.1	Recognize that Earth is made up of rocks. Rocks come in many sizes and shapes.	Level 2 M2 L1–2, 5–6 Level 2 M4 L1–6, 11–16, 20–21, 23–25
SC.2.E.6.2	Describe how small pieces of rock and dead plant and animal parts can be the basis of soil and explain the process by which soil is formed.	Level 2 M2 L3–4
SC.2.E.6.3	Classify soil types based on color, texture (size of particles), the ability to retain water, and the ability to support the growth of plants.	Level 2 M2 L3–4, 10–12 Level 2 M3 L4–5, 7

<b>SC.2.E.7 Earth Systems and Patterns</b>		<b>Aligned <i>PhD Science</i> Lessons</b>
Humans continue to explore the interactions among water, air, and land. Air and water are in constant motion that results in changing conditions that can be observed over time.		
SC.2.E.7.1	Compare and describe changing patterns in nature that repeat themselves, such as weather conditions including temperature and precipitation, day to day and season to season.	Level K M1 L1–11, 17–24, 28–30 Level K M4 L25
SC.2.E.7.2	Investigate by observing and measuring that the Sun's energy directly and indirectly warms the water, land, and air.	Level K M1 L8–16, 28–30
SC.2.E.7.3	Investigate, observe, and describe how water left in an open container disappears (evaporates), but water in a closed container does not disappear (evaporate).	
SC.2.E.7.4	Investigate that air is all around us and that moving air is wind.	Level K M1 L6–7
SC.2.E.7.5	State the importance of preparing for severe weather, lightning, and other weather related events.	Level K M1 L22–30
<b>Nature of Science</b>		
<b>SC.2.N.1 The Practice of Science</b>		<b>Aligned <i>PhD Science</i> Lessons</b>
<p>A: 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.</p> <p>B: The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."</p> <p>C: Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.</p> <p>D: 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.</p>		
SC.2.N.1.1	Raise questions about the natural world, investigate them in teams through free exploration and systematic observations, and generate appropriate explanations based on those explorations.	Level 2 M1 L1–3 Level 2 M2 L1–2 Level 2 M3 L1–2 Level 2 M4 L1–3
SC.2.N.1.2	Compare the observations made by different groups using the same tools.	Level 2 M4 L1–6, 20–21, 23–25
SC.2.N.1.3	Ask "how do you know?" in appropriate situations and attempt reasonable answers when asked the same question by others.	Level 2 M3 L3–6

SC.2.N.1.4	Explain how particular scientific investigations should yield similar conclusions when repeated.		Level 2 M2 L3–4, 8–12, 22–24
SC.2.N.1.5	Distinguish between empirical observation (what you see, hear, feel, smell, or taste) and ideas or inferences (what you think).		Level K M4 L14–16 Level 1 M3 L11–13, 15–16, 26–29
SC.2.N.1.6	Explain how scientists alone or in groups are always investigating new ways to solve problems.		Level 2 M1 L20–22, 24–28, 29–31 Level 2 M2 L1–4, 8–12, 22–24 Level 2 M3 L25–29 Level 2 M4 L23–25