

# **What are the Differences between the Wisconsin Standards for Science (WSS) and Next Generation Science Standards (NGSS)?**

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# Establishing a Vision for Science Education

“[By] the end of 12th grade, *all* students have some appreciation of the beauty and wonder of science; possess sufficient knowledge of science and engineering to engage in public discussions on related issues; are careful consumers of scientific and technological information related to their everyday lives; are able to continue to learn about science outside school; and have the skills to enter careers of their choice, including (but not limited to) careers in science, engineering, and technology.”

# Quick Review - Basic NGSS Format

nextgenscience.org

1-PS4 Waves and their Applications in Technologies for Information Transfer		
<b>1-PS4 Waves and their Applications in Technologies for Information Transfer</b> Students who demonstrate understanding can:		
<b>1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.</b> [Clarification Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.]		
<b>1-PS4-2. Make observations to construct an evidence-based account that objects can be seen only when illuminated.</b> [Clarification Statement: Examples of observations could include those made in a completely dark room, a sealed box, and a video of a cave explorer with a flashlight. Illumination could be from an external light source or by an object giving off its own light.]		
<b>1-PS4-3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.</b> [Clarification Statement: Examples of materials could include those that are transparent (such as clear plastic), translucent (such as wax paper), opaque (such as cardboard), and reflective (such as a mirror).] [Assessment Boundary: Assessment does not include the speed of light.]		
<b>1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.*</b> [Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string "shouters" and a system of drum beats.] [Assessment Boundary: Assessment does not include technological details for how communication devices work.]		
<i>The performance expectations above were developed using the following statements from the NRC document A Framework for K-12 Science Education.</i>		
<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Crosscutting Concepts</b>
<b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions to problems in K-2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. <ul style="list-style-type: none"> <li>Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question. (1-PS4-1)(1-PS4-2)</li> </ul> <b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in K-2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. <ul style="list-style-type: none"> <li>Make observations ( firsthand or from media) to construct an evidence-based account for natural phenomena. (1-PS4-2)</li> <li>Use tools and materials provided to design a device that solve a specific problem. (1-PS4-4)</li> </ul> <hr/> <i>Connections to Nature of Science</i>	<b>PS4.A: Wave Properties</b> <ul style="list-style-type: none"> <li>Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1)</li> </ul> <b>PS4.B: Electromagnetic Radiation</b> <ul style="list-style-type: none"> <li>Objects can be seen if light is available to illuminate them or if they give off their own light. (1-PS4-2)</li> <li>Some materials allow light to pass through them, others allow only some light through, and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam. (Boundary: The idea that light travels from place to place is developed through experiences with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1-PS4-3)</li> </ul> <b>PS4.C: Information Technologies and Instrumentation</b> <ul style="list-style-type: none"> <li>People also use a variety of devices to communicate (send and receive information) over long distances. (1-PS4-4)</li> </ul>	<b>Cause and Effect</b> <ul style="list-style-type: none"> <li>Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-1)(1-PS4-2)(1-PS4-3)</li> </ul> <hr/> <i>Connections to Engineering, Technology, and Applications of Science</i>
<b>Connections to other DCI in this grade: N/A</b>		
<b>Alignment of DCI across grade-levels: 4.EP5.A (1-PS4-4); 3.PS1.A (2-PS4-3); 2.EP5.B (1-PS4-4); 4.PS4.C (1-PS4-4); 4.PS4.B (1-PS4-4); 4.EP5.A (1-PS4-4)</b>		
<b>Common Core State Standards Connections:</b>		
<b>Language Arts</b>		
<b>W.1.2</b> Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure. (1-PS4-2)		
<b>W.1.7</b> Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions). (1-PS4-1)(1-PS4-2)(1-PS4-3)(1-PS4-4)		
<b>W.1.8</b> With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (1-PS4-1)(1-PS4-2)(1-PS4-3)		
<b>SL.1.5</b> Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. (1-PS4-1)(1-PS4-2)		
<b>Mathematics</b>		
<b>MP.5</b> Use appropriate tools strategically. (1-PS4-4)		
<b>1.MD.A.1</b> Order three objects by length; compare the lengths of two objects indirectly by using a third object. (1-PS4-6)		
<b>1.MD.A.2</b> Express the length of an object as a whole number of length units, by layering multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. (1-PS4-6)		

\*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The section entitled "Disciplinary Core Ideas" is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas. Integrated and reprinted with permission from the National Academy of Sciences.

# Quick Review - Basic NGSS Format

## 1-PS4 Waves and their Applications in Technologies for Information Transfer

1-PS4 Waves and their Applications in Technologies for Information Transfer	
Students who demonstrate understanding can:	
1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. [Clarification Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.]	
1-PS4-2. Make observations to construct an evidence-based account that objects can be seen only when illuminated. [Clarification Statement: Examples of observations could include those made in a completely dark room, a opaque box, and a video of a cave explorer with a flashlight. Illumination could be from an external light source or by an object giving off its own light.]	
1-PS4-3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light. [Clarification Statement: Examples of materials could include those that are transparent (such as clear plastic), translucent (such as wax paper), opaque (such as cardboard), and reflective (such as a mirror).] [Assessment boundary: Assessment does not include the speed of light.]	
1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.* [Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string "telephones," and a system of drum beats.] [Assessment boundary: Assessment does not include technological details for how communication devices work.]	

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions to problems in K-2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question. (1-PS4-1)(1-PS4-2)</li> </ul> <p><b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in K-2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> <li>Make observations ( firsthand or from media) to construct an evidence-based account for natural phenomena. (1-PS4-2)</li> <li>Use tools and materials provided to design a device that solves a specific problem. (1-PS4-4)</li> </ul>	<p><b>PS4.A: Wave Properties</b></p> <ul style="list-style-type: none"> <li>Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1)</li> </ul> <p><b>PS4.B: Electromagnetic Radiation</b></p> <ul style="list-style-type: none"> <li>Objects can be seen if light is available to illuminate them or if they give off their own light. (1-PS4-2)</li> <li>Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam. (boundary: The idea that light travels from place to place is developed through experiences with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1-PS4-3)</li> </ul> <p><b>PS4.C: Information Technologies and Instrumentation</b></p> <ul style="list-style-type: none"> <li>People also use a variety of devices to communicate (send and receive information) over long distances. (1-PS4-4)</li> </ul>	<p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-1)(1-PS4-2)(1-PS4-3)</li> </ul> <hr/> <p><i>Connections to Engineering, Technology, and Applications of Science</i></p> <p><b>Influence of Engineering, Technology, and Science, on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>People depend on various technologies in their lives; human life would be very different without technology. (1-PS4-4)</li> </ul>
<p><b>Connections to Nature of Science</b></p> <p><b>Scientific Investigations Use a Variety of Methods</b></p> <ul style="list-style-type: none"> <li>Science investigations begin with a question. (1-PS4-1)</li> <li>Scientists use different ways to study the world. (1-PS4-1)</li> </ul>		

Connections to other DCI in that grade: N/A

Articulation of DCI across grade-levels: K.ETS1.A (1-PS4-1); 1.PS1.A (1-PS4-3); 2.ETS1.B (1-PS4-4); 4.PS4.C (1-PS4-4); 4.PS4.B (1-PS4-3); 4.ETS1.A (1-PS4-1)

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1-PS4 Waves and their Applications in Technologies for Information Transfer		
<p><b>1-PS4 Waves and their Applications in Technologies for Information Transfer</b></p> <p>Students who demonstrate understanding can:</p> <p><b>1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.</b> [Clarification Statement: Examples of vibrating materials that make sound could include using tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.]</p> <p><b>1-PS4-2. Make observations to construct an evidence-based account that objects can be seen only when illuminated.</b> [Clarification Statement: Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a cave explorer with a flashlight. Illumination could be from an external light source or by an object giving off its own light.]</p> <p><b>1-PS4-3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.</b> [Clarification Statement: Examples of materials could include those that are transparent (such as clear plastic), translucent (such as wax paper), opaque (such as cardboard), and reflective (such as a mirror).] [Assessment Boundary: Assessment does not include the speed of light.]</p> <p><b>1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.*</b> [Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string "telephones," and a system of slats that "talk." [Assessment Boundary: Assessment does not include technological details like how communication devices work.]</p> <p><small>*The performance expectations above were developed using the following elements from the 2013 Document A Framework for K-12 Science Education.</small></p>		
<p><b>Science and Engineering Practices</b></p> <p><b>Plan and Carry Out Investigations</b></p> <p>Planning and carrying out investigations to answer questions or test solutions to problems in 6-7 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question. (1-PS4-1)(1-PS4-2)</li> </ul> <p><b>Constructing Explanations and Designing Solutions</b></p> <p>Constructing explanations and designing solutions in 6-7 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> <li>Make observations ( firsthand or from media) to construct an evidence-based account of natural phenomena. (1-PS4-2)</li> <li>Use tools and materials provided to design a device that solves a specific problem. (1-PS4-4)</li> </ul> <p>-----</p> <p><i>Connections to Nature of Science</i></p> <p><b>Scientific Investigations Use a Variety of Methods</b></p> <ul style="list-style-type: none"> <li>Scientific investigations begin with a question. (1-PS4-1)</li> <li>Scientists use different ways to study the world. (1-PS4-1)</li> </ul> <p><i>Connections to other levels in this grade: N/A</i></p>	<p><b>Disciplinary Core Ideas</b></p> <p><b>PS4.A: Wave Properties</b></p> <ul style="list-style-type: none"> <li>Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1)</li> </ul> <p><b>PS4.B: Electromagnetic Radiation</b></p> <ul style="list-style-type: none"> <li>Objects can be seen if light is available to illuminate them or if they give off their own light. (1-PS4-2)</li> <li>Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam. (Boundary: The idea that light travels from place to place is developed through experiences with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1-PS4-3)</li> </ul> <p><b>PS4.C: Information Technologies and Instrumentation</b></p> <ul style="list-style-type: none"> <li>People also use a variety of devices to communicate (send and receive information) over long distances. (1-PS4-4)</li> </ul>	<p><b>Crosscutting Concepts</b></p> <p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Single factors can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-1)(1-PS4-2)(1-PS4-3)</li> </ul> <p>-----</p> <p><i>Connections to Engineering, Technology, and Applications of Science</i></p> <p><b>Influence of Engineering, Technology, and Science, on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>People depend on various technologies in their lives; human life would be very different without technology. (1-PS4-4)</li> </ul>
<p><b>Anchor Standard of IL in across grade-level: 4.EFNS.A (1-PS4-1); 2.PS4.B (1-PS4-2); 2.EFNS.B (1-PS4-3); 4.PS4.C (1-PS4-4); 4.PS4.B (1-PS4-2); 4.EFNS.A (1-PS4-1)</b></p> <p><b>Common Core State Standards Connections:</b></p> <p><b>ELA/Literacy –</b></p> <p><b>W.1.1</b> Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure. (1-PS4-2)</p> <p><b>W.1.7</b> Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions). (1-PS4-1)(1-PS4-2)(1-PS4-3)(1-PS4-4)</p> <p><b>W.1.8</b> With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (1-PS4-1)(1-PS4-2)(1-PS4-3)</p> <p><b>SL.1.1</b> Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. (1-PS4-1)(1-PS4-2)(1-PS4-3)</p> <p><b>Mathematics –</b></p> <p><b>MP.1</b> Use appropriate tools strategically. (1-PS4-4)</p> <p><b>1.MD.A.1</b> Order three objects by length; compare the lengths of two objects indirectly by using a third object. (1-PS4-4)</p> <p><b>1.MD.A.2</b> Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. (1-PS4-4)</p>		
<p><small>*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The section entitled “Disciplinary Core Ideas” is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas. Integrated and reprinted with permission from the National Academy of Sciences.</small></p>		

# Differences in our Wisconsin Standards for Science

- Split out the 3 dimensions into progressions.

[dpi.wi.gov/science/standards](http://dpi.wi.gov/science/standards)

1-PS4 Waves and their Applications in Technologies for Information Transfer	
<p><b>1-PS4-1.</b> Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. <i>[Clarification Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.]</i></p> <p><b>1-PS4-2.</b> Make observations to construct an evidence-based account that objects can be seen only when illuminated. <i>[Clarification Statement: Examples of observations could include those made in a completely dark room, a visible laser, and a video of a cave explorer with a flashlight. A student could be told an infrared light source or by an object glowing of its own light.]</i></p> <p><b>1-PS4-3.</b> Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light. <i>[Clarification Statement: Examples of materials could include those that are transparent (such as clear plastic), translucent (such as frosted plastic), and opaque (such as a mirror). Assessment boundary: Assessment does not include the speed of light.]</i></p> <p><b>1-PS4-4.</b> Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.* <i>[Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string telephone, and a system of two beads.] Assessment boundary: Assessment does not include technological details for two communicating devices and 1. The performance expectations about wave phenomena from the <i>HS-PS4</i> document of <i>2012 Science Education</i>.</i></p>	
Science and Engineering Practices	Disciplinary Core Ideas
<p><b>Planning and Carrying Out Investigations</b></p> <ul style="list-style-type: none"> <li>Planning and carrying out investigations to answer questions or test solutions to problems in <i>K-2</i> builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</li> <li>Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question. (1-PS4-1)-(1-PS4-2)</li> <li>Constructing Explanations and Designing Solutions</li> <li>Constructing explanations and designing solutions in <i>K-2</i> builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</li> <li>Make observations (inward or from models) to construct an evidence-based account for natural phenomena. (1-PS4-2)</li> <li>Use tools and materials provided to design a device that solves a specific problem. (1-PS4-4)</li> </ul> <p><b>Connections to Nature of Science</b></p> <p>Scientific Investigations Use a Variety of Methods</p> <ul style="list-style-type: none"> <li>Science investigations begin with a question. (1-PS4-1)</li> <li>Solutions use different ways to study the world. (1-PS4-1)</li> </ul> <p><b>Connections to other LCs in this grade: WS-4</b></p> <p><b>Connections of LCs in other grade bands: K-ESS1A (1-PS4-1), 2-PS1A (1-PS4-2), 3-ESS1B (1-PS4-1), 4-PS1B (1-PS4-1), 4-ESS1A (1-PS4-1)</b></p>	<p><b>PS4.A: Wave Properties</b></p> <ul style="list-style-type: none"> <li>Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1)</li> <li>PS4.B: Electromagnetic Radiation</li> <ul style="list-style-type: none"> <li>Objects can be seen if light is available to illuminate them or if they give off their own light. (1-PS4-2)</li> <li>Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface located there, where the light cannot reach. Mirrors can be used to redirect a light beam. (Boundary: The idea that light travels from place to place is developed through experiments with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1-PS4-2)</li> </ul> </ul> <p><b>PS4.C: Information Technologies and Instrumentation</b></p> <ul style="list-style-type: none"> <li>People use sets of devices to communicate (and receive information) over long distances. (1-PS4-4)</li> </ul>
Crosscutting Concepts	
<p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Single tests can be designed to gather evidence to support or refute student ideas about cause. (1-PS4-1)-(1-PS4-2)</li> </ul> <p><b>Connections to <i>Endoview</i>, <i>Technology</i>, and <i>Applications of Science</i></b></p> <p><b>Influence of Engineering, Technology, and Science, on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>People depend on various technologies in their lives; human life would be very different without technology. (1-PS4-4)</li> </ul>	

LIFE SCIENCE				
Standard <i>LS.1-5</i> : Students use science and engineering practices, connecting concepts, and an understanding of structures and processes (on a scale from molecules to organisms) to make sense of phenomena and solve problems.				
Learning Element	Performance Indicators (By Grade Band)			
	K-2	3-5	6-8	9-12
<b>LS.1.A: Structure and Function</b>	<p><b>LS.1.A.1</b></p> <p>All organisms have external and internal structures that allow for survival, growth, reproduction, and response.</p>	<p><b>LS.1.A.2</b></p> <p>Plants and animals have both internal and external structures that allow for survival, behavior and reproduction.</p>	<p><b>LS.1.A.3</b></p> <p>All living things are made up of cells. In organisms, cells work together to form tissues and organs that are specialized for particular body functions.</p>	<p><b>LS.1.A.4</b></p> <p>Complex anatomical cells within organisms help perform essential functions of life. Some cells specialize an extension made up of numerous parts. Feedback mechanisms maintain an organism's internal conditions within narrow limits and regulate behavior.</p>
<b>LS.1.B: Growth and Development of Organisms</b> <p><b>LS.1.B.1</b></p> <p>Organisms that help the offspring survive.</p>	<p><b>LS.1.B.2</b></p> <p>Reproduction is essential to survival of organisms. Organisms have unique or diverse life cycles.</p>	<p><b>LS.1.B.3</b></p> <p>Organisms adapt to behaviors that increase the odds of reproduction, to ensure their survival in different to land, genetic and environmental factors.</p>	<p><b>LS.1.B.4</b></p> <p>Genetic and molecular cells in organisms occur by mitosis and differentiation for specific cell types.</p>	
<b>LS.1.C: Organization for Matter and Energy Flow in Organisms</b> <p><b>LS.1.C.1</b></p> <p>Organisms obtain food through food chains or other animals. Plants take in both water and carbon dioxide from the air and use both to produce food through photosynthesis.</p>	<p><b>LS.1.C.2</b></p> <p>Food provides animals with the materials and energy they need for both growth, survival, and motion. There is a cycle of matter for growth chiefly from air, water, and ground matter, and obtain energy from sunlight, which is used to maintain conditions necessary for survival.</p>	<p><b>LS.1.C.3</b></p> <p>Plants use the energy from light to make sugars through photosynthesis, which is taken up by animals and other organisms. Food is broken down through a series of chemical reactions that release the molecules and release energy.</p>	<p><b>LS.1.C.4</b></p> <p>The molecules produced through photosynthesis are used to make amino acids and other molecules that can be specialized into proteins or DNA. Through cellular respiration, matter and energy flow through different organizational levels of an organism as elements are exchanged to form different products of a transfer of energy.</p>	
<b>LS.1.D: Information Processing</b> <p><b>LS.1.D.1</b></p> <p>Animals sense and communicate information and respond to inputs via behaviors that help them survive.</p>	<p><b>LS.1.D.2</b></p> <p>Different sense receptors are specialized for particular kinds of information: animals use their</p>	<p><b>LS.1.D.3</b></p> <p>To communicate, organisms respond to different inputs. Invertebrate brains are simple, but complex brains</p>	<p><b>LS.1.D.4</b></p> <p>Organisms can process and store a variety of information through specialized cells and systems.</p>	
<p><b>LS.1.E: EXAMPLES OF THREE-DIMENSIONAL PHYSICALITY INDICATORS</b></p> <p><b>Grade K-2</b></p> <p>LS.1.E.1. Use observations to describe patterns of other plants and animals (including humans) used to survive.</p> <p>LS.1.E.2. Use materials to design a solution to a human problem to minimize land use and to bring an external need to help them survive.</p> <p>LS.1.E.3. Use a model to describe that animals have internal and external structures that Function to support survival, growth, reproduction, and behavior.</p> <p><b>Grade 3-5</b></p> <p>LS.1.E.1. Construct an argument that plants and animals have internal and external structures that Function to support survival, growth, reproduction, and behavior.</p> <p>LS.1.E.2. Use a model to describe that animals have internal and external structures that Function to support survival, growth, reproduction, and behavior.</p> <p>LS.1.E.3. Construct an argument that plants and animals have internal and external structures that Function to support survival, growth, reproduction, and behavior.</p> <p><b>Grade 6-8</b></p> <p>LS.1.E.1. Construct an argument that plants and animals have internal and external structures that Function to support survival, growth, reproduction, and behavior.</p> <p>LS.1.E.2. Use a model to describe that animals have internal and external structures that Function to support survival, growth, reproduction, and behavior.</p> <p>LS.1.E.3. Use a model to describe that animals have internal and external structures that Function to support survival, growth, reproduction, and behavior.</p> <p>LS.1.E.4. Construct an argument that plants and animals have internal and external structures that Function to support survival, growth, reproduction, and behavior.</p> <p>LS.1.E.5. Construct an argument that plants and animals have internal and external structures that Function to support survival, growth, reproduction, and behavior.</p>				

\*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The section entitled "Disciplinary Core Ideas" is reprinted verbatim from *A Framework for Science Education: Practices, Cross-Cutting Concepts, and Core Ideas*. Integrated and reprinted with permission from the National Academy of Sciences. ©2013 Achieve, Inc. All rights reserved.



# Differences in our Wisconsin Standards for Science

- Performance expectations are de-emphasized.

1-PS4 Waves and their Applications in Technologies for Information Transfer		
<p><b>1-PS4 Waves and their Applications in Technologies for Information Transfer</b></p> <p>Students who demonstrate understanding can:</p> <p><b>1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.</b> <i>[Clarification Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.]</i></p> <p><b>1-PS4-2. Make observations to construct an evidence-based account that objects can be seen only when illuminated.</b> <i>[Clarification Statement: Examples of observations could include those made in a completely dark room, a candle fire, and a hole of a cave looking with a flashlight. Illumination could be from an external light source or by an object giving off its own light.]</i></p> <p><b>1-PS4-3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.</b> <i>[Clarification Statement: Examples of materials could include those that are transparent (such as clear plastic), translucent (such as wax paper), opaque (such as cardboard), and reflective (such as a mirror).] [Assessment Boundary: Assessment does not include the speed of light.]</i></p> <p><b>1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.*</b> <i>[Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string "telegraph," and a system of drum beats.] [Assessment Boundary: Assessment does not include technological details like how components are put together.] The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i>.</i></p>		
<p><b>Science and Engineering Practices</b></p> <p><b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions to problems in K-2 builds on prior experience and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question. (1-PS4-1)(1-PS4-2)</li> </ul> <p><b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in K-2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> <li>Make observations ( firsthand or from media) to construct an evidence-based account for natural phenomena. (1-PS4-2)</li> <li>Use tools and materials provided to design a device that solves a specific problem. (1-PS4-4)</li> </ul> <p><b>Connections to Nature of Science</b></p> <p>Scientific Investigations Use a Variety of Methods</p> <ul style="list-style-type: none"> <li>Science investigations begin with a question. (1-PS4-1)</li> <li>Scientists use different ways to study the world. (1-PS4-1)</li> </ul> <p>Connections to other K-12 in this grade: N/A</p> <p><b>Assessment of 1-PS4 across grade-levels: 4.EF.1.A.1 (1-PS4-1), 2.PS.1.A.1 (1-PS4-2), 2.EF.1.B.1 (1-PS4-3), 4.PS.1.B.1 (1-PS4-4), 4.PS.1.B.2 (1-PS4-2), 4.EF.1.A.2 (1-PS4-4)</b></p>	<p><b>Disciplinary Core Ideas</b></p> <p><b>PS4.A: Wave Properties</b></p> <ul style="list-style-type: none"> <li>Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1)</li> </ul> <p><b>PS4.B: Electromagnetic Radiation</b></p> <ul style="list-style-type: none"> <li>Objects can be seen if light is available to illuminate them or if they give off their own light. (1-PS4-2)</li> <li>Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam. (Boundary: The idea that light travels from place to place is developed through experiments with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1-PS4-3)</li> </ul> <p><b>PS4.C: Information Technologies and Communications</b></p> <ul style="list-style-type: none"> <li>People also use a variety of devices to communicate (send and receive information) over long distances. (1-PS4-4)</li> </ul>	<p><b>Crosscutting Concepts</b></p> <p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-1)(1-PS4-2)</li> </ul> <p><b>Connections to Engineering, Technology, and Applications of Science</b></p> <p><b>Influence of Engineering, Technology, and Science, on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>People depend on various technologies in their lives; human life would be very different without technology. (1-PS4-4)</li> </ul>
<p><b>Connections to Nature of Science</b></p> <p>Scientific Investigations Use a Variety of Methods</p> <ul style="list-style-type: none"> <li>Science investigations begin with a question. (1-PS4-1)</li> <li>Scientists use different ways to study the world. (1-PS4-1)</li> </ul> <p>Connections to other K-12 in this grade: N/A</p> <p><b>Assessment of 1-PS4 across grade-levels: 4.EF.1.A.1 (1-PS4-1), 2.PS.1.A.1 (1-PS4-2), 2.EF.1.B.1 (1-PS4-3), 4.PS.1.B.1 (1-PS4-4), 4.PS.1.B.2 (1-PS4-2), 4.EF.1.A.2 (1-PS4-4)</b></p>		
<p><b>Common Core State Standards Connections:</b></p> <p><b>ELA/Literacy –</b></p> <p><b>W.1.1</b> Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some series of details. (1-PS4-2)</p> <p><b>W.1.7</b> Participate in shared research and writing projects (e.g., explore a number of “how-to” topics on a given topic and use them to write a sequence of instructions). (1-PS4-1)(1-PS4-2)(1-PS4-3)(1-PS4-4)</p> <p><b>W.1.8</b> With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (1-PS4-1)(1-PS4-2)(1-PS4-3)</p> <p><b>SL.1.1</b> Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in a small and larger group. (1-PS4-1)(1-PS4-2)(1-PS4-3)</p> <p><b>Mathematics –</b></p> <p><b>MP.5</b> Use appropriate tools strategically. (1-PS4-4)</p> <p><b>1.ND.1.1</b> Order three objects by length; compare the lengths of two objects indirectly by using a third object. (1-PS4-4)</p> <p><b>1.ND.1.2</b> Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of whole length units that span it with no gaps or overlaps. (1-PS4-4)</p>		

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LIFE SCIENCE				
<p>Standard LS.1:1: Students use science and engineering practices, crosscutting concepts, and an understanding of structures and processes (on a scale from molecules to organisms) to make sense of phenomena and solve problems.</p>				
<p>Performance Indicators (By Grade Band)</p>				
Learning Element	K-2	3-5	6-8	9-12
<p><b>LS.1.A.1: Structure and Function</b></p> <p>LS.1.A.1 All organisms have external parts that they use to perform daily functions.</p>	<p><b>LS.1.A.1</b> Plants and animals have both internal and external morphological structures that allow for growth, survival, behavior and reproduction.</p>	<p><b>LS.1.A.1</b> All organisms are made up of cells. In organisms, cells work together to form tissues and organs that are specialized for particular body functions.</p>	<p><b>LS.1.A.1</b> Cells of specialized cells within organisms help perform essential functions of life. Life processes in organisms are made up of numerous parts. Feedback mechanisms maintain an organism's internal conditions within certain limits and regulate behaviors.</p>	<p><b>LS.1.A.1</b> Growth and division of cells in organisms occurs by mitosis and differentiation for specific cell types.</p>
<p><b>LS.1.B.1: Growth and Development of Organisms</b></p> <p>LS.1.B.1 Parents and offspring often engage in behaviors that help the offspring survive.</p>	<p><b>LS.1.B.1</b> Reproduction is essential to every level of organization. Organisms have unique and diverse life cycles.</p>	<p><b>LS.1.B.1</b> Animals engage in behaviors that increase the odds of reproduction. An organism's survival is affected by both genetic and environmental factors.</p>	<p><b>LS.1.B.1</b> Growth and division of cells in organisms occurs by mitosis and differentiation for specific cell types.</p>	<p><b>LS.1.B.1</b> Growth and division of cells in organisms occurs by mitosis and differentiation for specific cell types.</p>
<p><b>LS.1.C.1: Organization for Matter and Energy Flow in Organisms</b></p> <p>LS.1.C.1 Animals obtain food from food from plants or other animals. Plants take carbon dioxide from the air.</p>	<p><b>LS.1.C.1</b> Food provides animals with the materials and energy they need for both their growth, survival, and motion. Plants capture material for growth while they are alive, and animals matter, and obtain energy through sunlight, which is used to maintain conditions necessary for survival.</p>	<p><b>LS.1.C.1</b> Plants use the energy from light to make sugars through photosynthesis. While in dissolved solutions, food is broken down through a series of chemical reactions that release molecules and release energy.</p>	<p><b>LS.1.C.1</b> Plants use the energy from light to make sugars through photosynthesis. While in dissolved solutions, food is broken down through a series of chemical reactions that release molecules and release energy.</p>	<p><b>LS.1.C.1</b> The molecules produced through photosynthesis are used to make amino acids and other molecules that can be assembled into proteins or DNA. Through cellular respiration, matter and energy flow through different organizational levels of an organism as elements are recycled in form of different products and release energy.</p>
<p><b>LS.1.D.1: Information Processing</b></p> <p>LS.1.D.1 Animals sense and communicate information and respond to their environment through their behavior.</p>	<p><b>LS.1.D.1</b> Different sense receptors are specialized for particular kinds of information, such as light, sound, touch, taste, and smell.</p>	<p><b>LS.1.D.1</b> Different sense receptors respond to different stimuli. Responses from stimuli are processed in the brain to result in immediate behavior or memories.</p>	<p><b>LS.1.D.1</b> Different sense receptors respond to different stimuli. Responses from stimuli are processed in the brain to result in immediate behavior or memories.</p>	<p><b>LS.1.D.1</b> Different sense receptors respond to different stimuli. Responses from stimuli are processed in the brain to result in immediate behavior or memories.</p>

and survive.	descriptions and memories in guide illustrations.	reflects the book. The signals are then processed in the brain to result in immediate behavior or memories.	interconnected networks.
<p><b>LS.1.C.1: EXAMPLE THREE-DIMENSIONAL PERFORMANCE INDICATORS</b></p>			
<p><b>LS.1.C.1.1</b> Use observations to describe patterns of what plants and animals (including humans) need to survive.</p> <p><b>LS.1.C.1.2</b> Use materials to develop a solution for a human problem to minimize how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>LS.1.C.1.3</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p>	<p><b>LS.1.C.1.1</b> Use observations to describe patterns of what plants and animals (including humans) need to survive.</p> <p><b>LS.1.C.1.2</b> Use materials to develop a solution for a human problem to minimize how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>LS.1.C.1.3</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p>	<p><b>LS.1.C.1.1</b> Use observations to describe patterns of what plants and animals (including humans) need to survive.</p> <p><b>LS.1.C.1.2</b> Use materials to develop a solution for a human problem to minimize how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>LS.1.C.1.3</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p>	<p><b>LS.1.C.1.1</b> Use observations to describe patterns of what plants and animals (including humans) need to survive.</p> <p><b>LS.1.C.1.2</b> Use materials to develop a solution for a human problem to minimize how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>LS.1.C.1.3</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p>
<p><b>LS.1.C.1.4</b> Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior and reproduction.</p> <p><b>LS.1.C.1.5</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>LS.1.C.1.6</b> Support an argument that plants capture materials they need for growth chiefly from air and water.</p>	<p><b>LS.1.C.1.4</b> Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior and reproduction.</p> <p><b>LS.1.C.1.5</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>LS.1.C.1.6</b> Support an argument that plants capture materials they need for growth chiefly from air and water.</p>	<p><b>LS.1.C.1.4</b> Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior and reproduction.</p> <p><b>LS.1.C.1.5</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>LS.1.C.1.6</b> Support an argument that plants capture materials they need for growth chiefly from air and water.</p>	<p><b>LS.1.C.1.4</b> Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior and reproduction.</p> <p><b>LS.1.C.1.5</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>LS.1.C.1.6</b> Support an argument that plants capture materials they need for growth chiefly from air and water.</p>
<p><b>MS.LS.1.1</b> Conduct an investigation to provide evidence that the characteristics of cells, either one cell or many different numbers and kinds of cells, are essential to life.</p> <p><b>MS.LS.1.2</b> Develop and use a model to describe the function of a cell as a whole and as parts of cells contribute to the function.</p> <p><b>MS.LS.1.3</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.4</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.5</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.6</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p>	<p><b>MS.LS.1.1</b> Conduct an investigation to provide evidence that the characteristics of cells, either one cell or many different numbers and kinds of cells, are essential to life.</p> <p><b>MS.LS.1.2</b> Develop and use a model to describe the function of a cell as a whole and as parts of cells contribute to the function.</p> <p><b>MS.LS.1.3</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.4</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.5</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.6</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p>	<p><b>MS.LS.1.1</b> Conduct an investigation to provide evidence that the characteristics of cells, either one cell or many different numbers and kinds of cells, are essential to life.</p> <p><b>MS.LS.1.2</b> Develop and use a model to describe the function of a cell as a whole and as parts of cells contribute to the function.</p> <p><b>MS.LS.1.3</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.4</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.5</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.6</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p>	<p><b>MS.LS.1.1</b> Conduct an investigation to provide evidence that the characteristics of cells, either one cell or many different numbers and kinds of cells, are essential to life.</p> <p><b>MS.LS.1.2</b> Develop and use a model to describe the function of a cell as a whole and as parts of cells contribute to the function.</p> <p><b>MS.LS.1.3</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.4</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.5</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.6</b> Use a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p>
<p><b>MS.LS.1.7</b> Develop a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.8</b> Develop a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.9</b> Develop a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p>	<p><b>MS.LS.1.7</b> Develop a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.8</b> Develop a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.9</b> Develop a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p>	<p><b>MS.LS.1.7</b> Develop a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.8</b> Develop a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.9</b> Develop a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p>	<p><b>MS.LS.1.7</b> Develop a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.8</b> Develop a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p> <p><b>MS.LS.1.9</b> Develop a model to describe how plants and animals use their external parts to take their own care, and meet their needs.</p>



# Differences in our Wisconsin Standards for Science

Students use science and engineering practices, crosscutting concepts, and an understanding of disciplinary core ideas to make sense of phenomena and solve problems.

**1-PS4 Waves and their Applications in Technologies for Information Transfer**

*Students who demonstrate understanding can:*

- 1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. *Clarification Statement:* Examples of vibrating materials that make sound could include tuning forks and plucking stretched strings. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker emitting sound and holding an object near a vibrating tuning fork.
- 1-PS4-2. Make observations to construct an evidence-based account that objects can be seen only when illuminated. *Clarification Statement:* Examples of observations could include how much a computer monitor screen, a candle flame, and a slice of raw onion with a flashlight. Illumination could be from an overhead light source or by a divergent beam of light.
- 1-PS4-3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light. *Clarification Statement:* Examples of experiments could include how an opaque block or transparent block in one plane; a transparent block in a plane; a color filter (such as cellophane) and reflection (such as a mirror). *Assessment Boundary:* Assessment does not include the speed of light.
- 1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance. *Clarification Statement:* Examples of devices could include a light source to send signals, paper tape and string communication, and systems of cues (such as Morse Code). *Assessment Boundary:* Assessment does not include technological devices such as the radio or telephone.

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*The performance expectations stated here are not meant to be taken literally from the NGSS document. It is intended to be used as a guide for developing instruction.*

Disciplinary Core Ideas	Crosscutting Concepts	Science Practices
<p><b>Physical and Chemical Processes</b></p> <p>Identify and describe how investigations involving and observing changes in motion and interactions in 1-2 builds on prior experience and introduces a variety of phenomena, based on the idea, which provide data to support explanations of design solutions.</p> <ul style="list-style-type: none"> <li>They are not intended to be used to provide data to support explanations of design solutions.</li> <li>They are not intended to be used to provide data to support explanations of design solutions.</li> <li>They are not intended to be used to provide data to support explanations of design solutions.</li> <li>They are not intended to be used to provide data to support explanations of design solutions.</li> </ul> <p><b>Connections to Nature of Science</b></p> <p>Scientific investigations use a variety of methods.</p> <ul style="list-style-type: none"> <li>Observations may be made to describe an event or to compare several instances of an event.</li> <li>Measurements are used to gather data to compare with predictions of a model or to provide data to support an explanation of an event.</li> <li>Models and simulations are used to describe an event or to compare several instances of an event.</li> <li>Measurements are used to gather data to compare with predictions of a model or to provide data to support an explanation of an event.</li> </ul>	<p><b>Patterns</b></p> <p>PS4.A. Wave Properties                  • Sound can travel through a medium.                  • Objects can be used to reflect, absorb, or transmit sound.                  • If they are not used to reflect, absorb, or transmit sound, they can be used to scatter sound.                  • Some materials allow light to pass through. Some others absorb and some light. Examples of light and sound waves that travel through a medium and others that do not include light waves, sound waves, and seismic waves.                  • Light and sound waves travel through a medium and others that do not include light waves, sound waves, and seismic waves.                  • Some materials allow light to pass through. Some others absorb and some light. Examples of light and sound waves that travel through a medium and others that do not include light waves, sound waves, and seismic waves.</p> <p><b>Scale, Proportion, and Quantity</b></p> <p>PS4.C. Information Technologies and Applications                  • Information technologies and applications are used to communicate information.                  • Information technologies and applications are used to communicate information.                  • Information technologies and applications are used to communicate information.</p>	<p><b>Using Mathematics and Computational Thinking</b></p> <p>PS4.A. Wave Properties                  • Simple waves can be described by graphs.                  • Simple waves can be described by graphs.                  • Simple waves can be described by graphs.</p> <p><b>Connections to Disciplines, Technologies, and Applications of Science</b></p> <p>Influence of Explanations, Technologies, and Models on Society                  • Explanations of wave phenomena have led to the development of many technologies.                  • Explanations of wave phenomena have led to the development of many technologies.                  • Explanations of wave phenomena have led to the development of many technologies.</p>

The scientific "Disciplinary Core Ideas" are repeated verbatim from the NGSS document. The "Crosscutting Concepts" and "Science Practices" are modified to reflect the differences in the Wisconsin standards for science.

**1-PS4-1**

**Performance Indicators (by Grade Band)**

Grade Band	1-PS4-1.A	1-PS4-1.B	1-PS4-1.C
<b>1-PS4-1.A</b>	All students have some tasks that they use to perform their functions.	Students are able to use all the materials and resources that are available to them to perform their functions.	Students are able to use all the materials and resources that are available to them to perform their functions.
<b>1-PS4-1.B</b>	Students are able to use all the materials and resources that are available to them to perform their functions.	Students are able to use all the materials and resources that are available to them to perform their functions.	Students are able to use all the materials and resources that are available to them to perform their functions.
<b>1-PS4-1.C</b>	Students are able to use all the materials and resources that are available to them to perform their functions.	Students are able to use all the materials and resources that are available to them to perform their functions.	Students are able to use all the materials and resources that are available to them to perform their functions.

Indicator	Indicator	Indicator	Indicator
1-PS4-1.A	1-PS4-1.B	1-PS4-1.C	1-PS4-1.D
1-PS4-1.E	1-PS4-1.F	1-PS4-1.G	1-PS4-1.H
1-PS4-1.I	1-PS4-1.J	1-PS4-1.K	1-PS4-1.L

Indicator	Indicator	Indicator	Indicator
1-PS4-1.M	1-PS4-1.N	1-PS4-1.O	1-PS4-1.P
1-PS4-1.Q	1-PS4-1.R	1-PS4-1.S	1-PS4-1.T
1-PS4-1.U	1-PS4-1.V	1-PS4-1.W	1-PS4-1.X



# Differences in our Wisconsin Standards for Science

- Higher level DCIs (not all details from NGSS orange boxes)

**1-PS4 Waves and their Applications in Technologies for Information Transfer**

**1-PS4-1 Waves and their Applications in Technologies for Information Transfer**

Students who demonstrate understanding can:

**1-PS4-1** Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. *Clarification Statement:* Examples of vibrating materials that make sound could include using forks and plucking a stretched string. Examples of that sound can make other objects vibrate could include holding a piece of paper near a speaker emitting sound and holding a object near a vibrating tuning fork.

**1-PS4-2** Make observations to construct an evidence-based account that objects can be seen only when illuminated. *Clarification Statement:* Examples of observations could include how much a computer, cell phone, a mirror, fan, and a side of a tree reflect with a flashlight. *Assessment Boundary:* This performance expectation does not include the use of lenses.

**1-PS4-3** Plan and conduct an investigation to determine the effect of placing objects with different materials in the path of a beam of light. *Clarification Statement:* Examples of materials could include those that are transparent (such as clear plastic), translucent (such as frosted paper), or opaque (such as cardboard), and reflective (such as a mirror). *Assessment Boundary:* Assessment does not include the speed of light.

**1-PS4-4** Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.\* *Clarification Statement:* Examples of devices could include light sensors to send signals, night-vision goggles, and using "mirrors" and angles of reflection to transmit signals. *Assessment Boundary:* Assessment does not include technical details to how communication devices work.

The performance expectations above were developed using the following elements from the D.CI, D.CS, and D.CE Science Practices:

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Planning and Carrying Out Investigations</b></p> <ul style="list-style-type: none"> <li>Planning and carrying out investigations to answer questions or test solutions to problems in 1-2 builds on prior experience and increases to create investigations, based on the tools, which provide data to support explanations or design solutions.</li> <li>Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question. (1-PS4-1) (1-PS4-2)</li> </ul> <p><b>Constructing Explanations and Designing Solutions</b></p> <ul style="list-style-type: none"> <li>Constructing explanations and designing solutions in 1-2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</li> <li>Make observations (direct and/or from media) to construct an evidence-based account for natural phenomena. (1-PS4-2)</li> <li>Use tools and materials provided to design a device that solves a specific problem. (1-PS4-3)</li> </ul> <p><i>Connections to History of Science</i></p> <p><b>Scientific Investigations Use a Variety of Methods</b></p> <ul style="list-style-type: none"> <li>Science investigations from 1-2 build on 1-PS4-1.</li> <li>Science use different ways to study the world. (1-PS4-1)</li> </ul>	<p><b>PS4.A: Wave Phenomena</b></p> <ul style="list-style-type: none"> <li>Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1)</li> </ul> <p><b>PS4.B: Electromagnetic Radiation</b></p> <ul style="list-style-type: none"> <li>Objects can be seen if light is available to illuminate them or if they glow off their own light. (1-PS4-2)</li> <li>Some materials allow light to see through them, others allow only some light through, and some do not let any light through at all. Objects can be seen through them, when the light cannot reach them, can be seen through a light source. (Boundary: The side that light travels from plate to plate is developed through experience with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1-PS4-3)</li> </ul> <p><b>PS4.C: Information Technologies and Communications</b></p> <ul style="list-style-type: none"> <li>People also use a variety of devices to communicate (text and receive information) over long distances. (1-PS4-4)</li> </ul>	<p><b>Cause and Effect</b></p> <ul style="list-style-type: none"> <li>Simple tools can be designed to gather evidence to support or refute student ideas about cause. (1-PS4-1) (1-PS4-2) (1-PS4-3)</li> </ul> <p><b>Connections to Frameworks, Technologies, and Applications of Science</b></p> <p><i>Influence of Engineering, Technology, and Science on Society and the Natural World</i></p> <ul style="list-style-type: none"> <li>People depend on various technologies in their living lives that result from very different natural technology. (1-PS4-4)</li> </ul>

**Connections to History of Science**

**Scientific Investigations Use a Variety of Methods**

- Science investigations from 1-2 build on 1-PS4-1.
- Science use different ways to study the world. (1-PS4-1)

**Connections to Frameworks, Technologies, and Applications of Science**

*Influence of Engineering, Technology, and Science on Society and the Natural World*

- People depend on various technologies in their living lives that result from very different natural technology. (1-PS4-4)

**Connections to Frameworks, Technologies, and Applications of Science**

*Influence of Engineering, Technology, and Science on Society and the Natural World*

- People depend on various technologies in their living lives that result from very different natural technology. (1-PS4-4)

\*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The section titled "Disciplinary Core Ideas" is reproduced verbatim from a Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas. Integrated and expanded only preparation from the National Academies of Science. May 2013 ©2013 Achieve, Inc. All rights reserved. 1 of 1

**LIFE SCIENCE**

Standard SCILS: Students use science and engineering practices, connecting concepts, and an understanding of structures and processes (on a scale from molecules to organisms) to make sense of phenomena and solve problems.

Learning Element	8-2	8-8	8-8	8-12
<b>SCILS.A: Structure and Function</b>	SCILS.A.1 All organisms have external parts that they use to perform basic functions.	SCILS.A.2 Plants and animals have both internal and external mechanisms that allow for growth, survival, behavior, and reproduction.	SCILS.A.3 Reproduction is essential to every level of organization. Organisms have a one that's growth is affected by both genetic and environmental factors.	SCILS.A.4 Growth and division of cells in organisms require an organism's internal conditions within certain limits and maintain balance.
<b>SCILS.B: Growth and Development of Organisms</b>	SCILS.B.1 Heredity and offspring often express characteristics that are the offspring of their parents.	SCILS.B.2 Heredity provides a link between the traits of other animals. Heredity has a significant role.	SCILS.B.3 Food provides animals with the materials and energy they need for their basic growth, survival, and reproduction. Plants acquire material for growth chiefly from air, water, and ground matter, and obtain energy from sunlight, which is used in making conditions necessary for growth.	SCILS.B.4 Growth and division of cells in organisms require an organism's internal conditions within certain limits and maintain balance.
<b>SCILS.C: Organization for Function: Flow of Information</b>	SCILS.C.1 Heredity and communication information and respond to inside and outside signals.	SCILS.C.2 Different sense receptors are specialized for particular kinds of information (such as light).	SCILS.C.3 The nervous system uses the patterns of other systems and circuits (including hormonal) to send its signals.	SCILS.C.4 Organisms use processes and structures of information through specific molecules and cells.

**D.CI: EXAMPLE THREE-DIMENSIONAL PERFORMANCE INDICATORS**

Discipline	and science.	connections and responses to goals, structures.	relates to the task. The signals are those processed in the brain.	environmental networks.
<b>Discipline 8-2</b>	SCILS.A.1	SCILS.A.2	SCILS.A.3	SCILS.A.4
<b>Discipline 8-8</b>	SCILS.B.1	SCILS.B.2	SCILS.B.3	SCILS.B.4
<b>Discipline 8-12</b>	SCILS.C.1	SCILS.C.2	SCILS.C.3	SCILS.C.4

<b>Discipline 8-12</b>	SCILS.C.1	SCILS.C.2	SCILS.C.3	SCILS.C.4
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# Differences in our Wisconsin Standards for Science

- Addition: ETS3: Nature of Science and Engineering

1-PS4 Waves and their Applications in Technologies for Information Transfer	
<p><b>1-PS4-1</b> Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. <i>Clarification Statement:</i> Examples of vibrating materials that make sound could include using forks and plucking a stretched string. Examples of their sound could make water waves could include holding a piece of paper near a speaker emitting sound and holding an object over a vibrating tuning fork.</p> <p><b>1-PS4-2</b> Make observations to construct an evidence-based account that objects can be seen only when illuminated. <i>Clarification Statement:</i> Examples of observations could include how much a computer, cell phone, a mirror, fan, and a side of a tree reflect with a flashlight. <i>Assessment Boundary:</i> Limit to one or two objects.</p> <p><b>1-PS4-3</b> Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light. <i>Clarification Statement:</i> Examples of materials could include those that are transparent (such as clear plastic), translucent (such as wax paper), or opaque (such as cardboard), and reflective (such as a mirror). <i>Assessment Boundary:</i> Assessment does not include the speed of light.</p> <p><b>1-PS4-4</b> Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.* <i>Clarification Statement:</i> Examples of devices could include light-based or sound-based devices, such as using "optical fibers" and analog or digital signals. <i>Assessment Boundary:</i> Assessment does not include technical details of how communication devices work.</p>	
<p><b>Science and Engineering Practices</b></p> <p>Planning and Carrying Out Investigations</p> <p>Planning and carrying out investigations to answer questions or test solutions to problems in 1–2 builds on prior experience and increases to create investigations, based on the tools, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question. (1-PS4-1) (1-PS4-2)</li> <li>Construct explanations and design solutions in 1–2 builds on prior experience and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</li> <li>Make observations (direct or from media) to construct an evidence-based account for natural phenomena. (1-PS4-2)</li> <li>Use tools and materials provided to design a device that solves a specific problem. (1-PS4-4)</li> </ul> <p><i>Connections to History of Science</i></p> <p>Scientific Investigations Use a Variety of Methods</p> <ul style="list-style-type: none"> <li>Science investigations have many methods. (1-PS4-1)</li> <li>Scientists use different ways to study the world. (1-PS4-1)</li> </ul>	<p><b>Disciplinary Core Ideas</b></p> <p><b>PS4.A: Wave Phenomena</b></p> <ul style="list-style-type: none"> <li>Sound can travel through matter, and vibrating matter can make sound. (1-PS4-1)</li> <li>PS4.B: Electromagnetic Radiation</li> <ul style="list-style-type: none"> <li>Objects can be seen if light is visible to illuminate them or if they glow off their own light. (1-PS4-2)</li> <li>Some materials allow light to see through them, others allow only some light through and block the rest. Light can travel through some materials as straight beams, where the light cannot reach. Mirrors can be used to redirect a light beam. (Boundary: The idea that light travels from place to place is developed through experiences with light waves, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1-PS4-3)</li> </ul> <li>PS4.C: Information Technologies and Communications</li> <ul style="list-style-type: none"> <li>People also use a variety of devices to communicate (text and receive information) over long distances. (1-PS4-4)</li> </ul> </ul>
<p><b>Crosscutting Concepts</b></p> <p>Cause and Effect</p> <ul style="list-style-type: none"> <li>Simple tools can be designed to gather evidence to support or refute student ideas about cause. (1-PS4-1) (1-PS4-2) (1-PS4-3)</li> </ul> <p>Connections to Evidence, Technology, and Application of Science</p> <p>Influence of Engineering, Technology, and Science, on Society and the Natural World</p> <ul style="list-style-type: none"> <li>People depend on various technologies in their living lives that would be very different without technology. (1-PS4-4)</li> </ul>	<p><b>Performance Expectations</b></p> <p>ETS3-1-1 Use observations to describe the patterns of other phenomena and extend (including drawing) on models of objects or systems.</p> <p>ETS3-1-2 Use models to describe a solution to a human problem or to extend (including drawing) on models of objects or systems.</p> <p>ETS3-1-3 Develop models to describe the behavior of systems in terms of energy and matter flows, forces, and interactions.</p> <p>ETS3-1-4 Construct an argument to describe that objects have internal and external structures that function to support survival, growth, reproduction, and behavior.</p> <p>ETS3-1-5 Use a model to describe that organisms have internal and external structures that function to support survival, growth, reproduction, and behavior.</p> <p>ETS3-1-6 Construct an argument to describe how the structure and function of simple systems are related to their parts.</p> <p>ETS3-1-7 Develop a model to describe how the structure and function of simple systems are related to their parts.</p> <p>ETS3-1-8 Construct an argument to describe how the structure and function of simple systems are related to their parts.</p>

\*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The section titled "Disciplinary Core Ideas" is reproduced verbatim from a document for 1–2 Science Education Practices, Cross-Cutting Concepts, and Disciplinary Core Ideas. Integrated and updated with permission from the National Academies of Science.

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LIFE SCIENCE			
Standard SCILS: Students use science and engineering practices, connecting concepts, and an understanding of structures and processes (on a scale from molecules to organisms) to make sense of phenomena and solve problems.			
Learning Theme	Performance Indicators (By Grade Band)	6-8	9-12
SCILS.A: Structure and Function	SCILS.A.1	SCILS.A.1.6	SCILS.A.1.8
	SCILS.A.2	SCILS.A.2.6	SCILS.A.2.8
SCILS.B: Growth and Development of Organisms	SCILS.B.1	SCILS.B.1.6	SCILS.B.1.8
	SCILS.B.2	SCILS.B.2.6	SCILS.B.2.8
SCILS.C: Organization for Matter, Energy, and Systems	SCILS.C.1	SCILS.C.1.6	SCILS.C.1.8
	SCILS.C.2	SCILS.C.2.6	SCILS.C.2.8
SCILS.D: Information Processing	SCILS.D.1	SCILS.D.1.6	SCILS.D.1.8
	SCILS.D.2	SCILS.D.2.6	SCILS.D.2.8

ETS3: EXAMPLE THREE-DIMENSIONAL PERFORMANCE INDICATORS			
Grade 6-8	ETS3-1-1	ETS3-1-2	ETS3-1-3
Grade 9-12	ETS3-1-4	ETS3-1-5	ETS3-1-6
Grade 9-12	ETS3-1-7	ETS3-1-8	ETS3-1-9

ETS3-1-1	ETS3-1-2	ETS3-1-3	ETS3-1-4	ETS3-1-5	ETS3-1-6	ETS3-1-7	ETS3-1-8	ETS3-1-9
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# Differences in our Wisconsin Standards for Science

- Helpful Appendices!

## Appendix A – Example connections to Wisconsin contexts and connections to Engineering, Technology, and Society

The vision for the new Wisconsin State Science Standards outlines the importance of providing opportunities for students to apply scientific thinking, skills, and understanding to real-world phenomena and problems. In order to achieve this goal, Appendix A lists real-world connections that are specific to Wisconsin, as well as connections to engineering and technology, for most science content standards (science-based connections tend to work in any context, not just Wisconsin); these connections are listed as a grade band progression, but most could be used at any grade level. The connections note which learning element progression they connect to (such as LS1.A). They are only provided for the Life Science, Physical Science, and Earth and Space Science sections. Engineering, Technology, and Society (ETS) is not called out as a separate section here; instead, these connections are provided in the context of science disciplines, as the standards intend for science and engineering to be integrated, not for engineering to be taught as a stand-alone subject. These sections are shaded grey to emphasize that these examples are not a required part of the standards. Teachers are encouraged to connect to local phenomena and meaningful engineering problems that make sense in their instruction and their community for their students.

LIFE SCIENCE				
Standard SCLLS1: Students use science and engineering practices, crosscutting concepts, and an understanding of structures and processes (on a scale from molecules to organisms) to make sense of phenomena and solve problems.				
	6-2	3-5	6-8	9-12
<b>SCLLS1: CONNECTIONS</b>				
<b>Example Wisconsin Connections</b>	Wisconsin plants (e.g., corn, soybeans, maple trees, and black walnut trees) have structures for seed dispersal (LS1.A).  Badgers' claws are long and sharp and allow them to dig quickly (LS1.A).	Explore concepts in this standard using water Wisconsin animals such as the gray wolf, baldpate, heron, and red fox (LS1.A, B).  Flood barriers respond to changing weather conditions by burrowing under the mud on the basis of a dam and erode under other conditions as described (LS1.A).  Many species of Wisconsin bats hibernate during the winter (LS1.A).	Climate change has an effect on Wisconsin plants such as wild rice (LS1.A).  Crops grown in Wisconsin are farmed in different ways (LS1.C).  Continually modifying crops can influence their growth (LS1.C).  An animal's choice of survival may increase due to certain behaviors. Examples include: -Wolves "junking" behavior among dogs -The seasonal migration of geese and cranes -The hibernation of bears and bats	Wisconsin Field Plants allow students to investigate and model energy dynamics in living systems (LS1.C).  Byproducts of forestation industries are used to provide energy for the transportation network (LS1.C).  Captive rearing is a system of wildlife management in Wisconsin that involves handling trees and allowing the plants to produce new growth (LS1.A).

<b>Engineering, Technology &amp; Society Connections</b>	Engineers use inspiration from nature to design biomimetic. Examples include Velcro and burr fasteners, and bullet and underwater vehicles.  Engineers design boats for protection.	Engineers design prosthetics and other artificial devices, such as hearing aids and cochlear implants.	ETS1.A, D5  Engineers develop tools from biological raw materials (ETS1.B).  Engineers can alter biological organisms through genetic engineering.	One of the National Academy of Engineering Grand Challenges includes course engineering the ocean to flourish and have the ocean sustain.
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Standard SCLLS2—Ecosystems: Students use science and engineering practices, crosscutting concepts, and an understanding of the interactions, energy, and dynamics within ecosystems to make sense of phenomena and solve problems.				
	6-2	3-5	6-8	9-12
<b>SCLLS2: CONNECTIONS</b>				
<b>Example Wisconsin Connections</b>	In 1857, native Wisconsin ecosystems could be reestablished (LS2.A).	Red-winged blackbirds alert the others of a lion's approach. Giant water tortoise in Minnesota in groups to retain temperature (LS2.D).  Phosphorus flows into the streams and impacts algal growth (LS2.A).	The population of lake trout is declining in Lake Michigan (LS2.A).  Predator and prey populations impact each other from year to year.  Wisconsin members of predation include wolves, coyotes, and bears, which limit the population of deer (LS2.A).  Weather and climate conditions are limiting factors on Wisconsin populations of deer, turkey, and eagles (LS2.A).  Changes in deer populations affect biodiversity in forest ecosystems (LS2.C).	Define the concept of carrying capacity to establish deer management (LS2.A).  Investigate the interrelationship of the lake trout and other species (LS2.A).  Invasive earthworms introduced in Wisconsin have had a negative impact on native species (LS2.D).  Evaluate the diversity of all habitats (LS2.A, D).

# Final Thoughts

What would help you?

What resources have you developed that you could share?

LIFE SCIENCE				
Standard SC.12.L.10.1: Students use science and engineering practices, connecting concepts, and an understanding of structures and processes (on a scale from molecules to organisms) to make sense of phenomena and solve problems.				
Learning Pattern	Performance Indicators (By Grade Band)			
	6-8	9-10	11	12
<b>SC.12.L.10.1.A.1</b> Structure and Function	SC.12.L.10.1.A.1.1 All organisms have external parts that they use to perform fully reproductive functions.	SC.12.L.10.1.A.1.2 Plants and animals have both internal and external mechanisms that allow for growth, survival, behavior, and reproduction.	SC.12.L.10.1.A.1.3 All structures are made out of cells. In organisms, cells work together to form tissues and organs that are specialized for particular functions.	SC.12.L.10.1.A.1.4 Systems of specialized cells within organisms help perform essential functions of the. Cells are organized in a manner that allows for an organism to make use of resources parts. Feedback mechanisms maintain an organism's internal conditions within certain limits and maintain behaviors.
<b>SC.12.L.10.1.A.2</b> Growth and Development of Organisms	SC.12.L.10.1.A.2.1 Parents and offspring often engage in behaviors that help the offspring survive.	SC.12.L.10.1.A.2.2 Reproduction is essential to every level of organisms. Organisms have unique and diverse life cycles.	SC.12.L.10.1.A.2.3 Animals engage in behaviors that increase their ability of reproduction, for one that's survival is affected by both genetic and environmental factors.	SC.12.L.10.1.A.2.4 Growth and division of cells in organisms occurs by mitosis and differentiation for specific cell types.
<b>SC.12.L.10.1.B.1</b> Organization for Matter and Energy Flow in Organisms	SC.12.L.10.1.B.1.1 Animals obtain food they need from plants or other animals. Plants need sunlight for photosynthesis.	SC.12.L.10.1.B.1.2 Food provides animals with the materials and energy they need for their own growth, survival, and motion. Plants acquire material for growth chiefly from air, water, and ground matter, and obtain some from sunlight, which is used in photosynthesis necessary for survival.	SC.12.L.10.1.B.1.3 Plants use the energy from light to make sugars through photosynthesis. While individual organisms, food is broken down through a series of chemical reactions that release molecules and release energy.	SC.12.L.10.1.B.1.4 The molecules produced through photosynthesis are used to make proteins and other molecules that are used in various ways. Through cellular respiration, matter and energy flow through different organizational levels of an organism as elements are recombined to form different products and transfer energy.
<b>SC.12.L.10.1.C.1</b> Information Processing	SC.12.L.10.1.C.1.1 Animals sense and communicate information and respond to inside and outside environmental changes.	SC.12.L.10.1.C.1.2 Different sense receptors are specialized for particular kinds of information (such as light).	SC.12.L.10.1.C.1.3 Each sense receptor responds to different kinds of stimuli that are different from one another.	SC.12.L.10.1.C.1.4 Organisms use processes and steps a variety of information through specialized cells.

	and animals.	responses and responses to gain information.	cells in the brain. The signals are then processed in the brain as they relate to behavior or responses.	neurological networks.
<b>SC.12.L.10.1. EXAMPLE THREE DIMENSIONAL PERFORMANCE INDICATORS</b>				
<b>Grade 6-8</b>	SC.12.L.10.1.A.1.1 Use a model to describe the functions of other plants and animals (including humans) that use to survive. SC.12.L.10.1.A.1.2 Use a model to describe the functions of other plants and animals (including humans) that use to survive. SC.12.L.10.1.A.1.3 Use a model to describe the functions of other plants and animals (including humans) that use to survive. SC.12.L.10.1.A.1.4 Use a model to describe the functions of other plants and animals (including humans) that use to survive. SC.12.L.10.1.A.1.5 Use a model to describe the functions of other plants and animals (including humans) that use to survive.			
<b>Grade 9-10</b>	SC.12.L.10.1.A.2.1 Use a model to describe the functions of other plants and animals (including humans) that use to survive. SC.12.L.10.1.A.2.2 Use a model to describe the functions of other plants and animals (including humans) that use to survive. SC.12.L.10.1.A.2.3 Use a model to describe the functions of other plants and animals (including humans) that use to survive. SC.12.L.10.1.A.2.4 Use a model to describe the functions of other plants and animals (including humans) that use to survive. SC.12.L.10.1.A.2.5 Use a model to describe the functions of other plants and animals (including humans) that use to survive.			
<b>Grade 11-12</b>	SC.12.L.10.1.A.3.1 Use a model to describe the functions of other plants and animals (including humans) that use to survive. SC.12.L.10.1.A.3.2 Use a model to describe the functions of other plants and animals (including humans) that use to survive. SC.12.L.10.1.A.3.3 Use a model to describe the functions of other plants and animals (including humans) that use to survive. SC.12.L.10.1.A.3.4 Use a model to describe the functions of other plants and animals (including humans) that use to survive. SC.12.L.10.1.A.3.5 Use a model to describe the functions of other plants and animals (including humans) that use to survive.			

<b>Grade 11-12</b>	SC.12.L.10.1.B.1.1 Use a model to describe the functions of other plants and animals (including humans) that use to survive. SC.12.L.10.1.B.1.2 Use a model to describe the functions of other plants and animals (including humans) that use to survive. SC.12.L.10.1.B.1.3 Use a model to describe the functions of other plants and animals (including humans) that use to survive. SC.12.L.10.1.B.1.4 Use a model to describe the functions of other plants and animals (including humans) that use to survive. SC.12.L.10.1.B.1.5 Use a model to describe the functions of other plants and animals (including humans) that use to survive.			
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# Reflection

Questions to consider in your K-12 science work:

- How is our work with science standards going to move us close to our vision?
- How will we know we're moving students closer to this vision?

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