

PRE-K STANDARDS

Earth and Space Sciences

PreK-ESS1. Earth's Place in the Universe	
<p>PreK-ESS1-1. Demonstrate awareness that the moon can be seen in the daytime and at night, and of the different apparent shapes of the moon over a month. [Assessment Boundary: Assessment does not include names for moon phases or sequencing moon phases.]</p> <p>PreK-ESS1-2. Observe and use evidence to describe that the sun is in different places in the sky during the day.</p>	
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :	
<p>Science and Engineering Practices</p> <p>Asking Questions and Solving Problems/Designing Things (Engineering)</p> <ul style="list-style-type: none"> Observe and ask questions about observable phenomena (objects, materials, organisms or events). (PreK-ESS1-1), (PreK-ESS1-2) <p>Constructing Explanations/Theories and Evaluating Solutions (Engineering)</p> <ul style="list-style-type: none"> Look for and describe patterns and relationships. (PreK-ESS1-2) 	<p>Disciplinary Core Ideas</p> <p>ESS1.A: The Universe and Its Stars</p> <ul style="list-style-type: none"> Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (PreK-ESS1-1, PreK-ESS1-2)
<i>Connections to other DCIs in pre-K:</i>	
<i>Articulation of DCIs across grade-bands:</i>	
<i>Common Core State Standards Connections:</i>	
<i>ELA/Literacy – Mathematics- shapes</i>	

PreK-ESS2. Earth's Systems	
<p>PreK-ESS2-1. Raise questions and engage in discussions about how different types of local environments (including water) provide homes for different kinds of living things.</p> <p>PreK-ESS2-2. Observe and classify non-living materials, natural and human made, in their local environment.</p> <p>PreK-ESS2-3. Explore and describe different places water is found in the local environment.</p> <p>PreK-ESS2-4. Use simple instruments to collect and record data on elements of daily weather, including sun or clouds, wind, snow or rain, and higher or lower temperature.</p> <p>PreK-ESS2-5. Describe how local weather changes from day to day and over the seasons and recognize patterns in those changes. [Clarification Statement: Descriptions of the weather can include sunny, cloudy, rainy, warm, windy, and snowy.]</p> <p>PreK-ESS2-6. Understand the impact of weather on living things. [Clarification statement: Make connections between the weather and what they wear and can do and the weather and the needs of plants and animals for water and shelter.]</p>	
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<p>Science and Engineering Practices</p> <p>Asking Questions and Solving Problems/Designing Things (Engineering)</p> <ul style="list-style-type: none"> Observe and ask questions about observable phenomena (objects, materials, organisms or events). (PreK-ESS2-1) <p>Planning and Carrying Out Investigations</p> <ul style="list-style-type: none"> Use their senses and simple tools to observe, gather, and record data (e.g., dictate, draw, photograph, write). (PreK-ESS2-2), (PreK-ESS2-3), (PreK-ESS2-4) <p>Constructing Explanations/Theories and Evaluating Solutions (Engineering)</p> <ul style="list-style-type: none"> Look for and describe patterns and relationships. (PreK-ESS2-5) <p>Make Meaning from Experience and Data</p> <ul style="list-style-type: none"> Apply their ideas to new situations (PreK-ESS2-6) 	<p>Disciplinary Core Ideas</p> <p>ESS2.A: Earth Materials and Systems</p> <ul style="list-style-type: none"> The materials on the land, provide homes for living things. (PreK-ESS2-1) <p>ESS2.B: Plate Tectonics and Large-Scale System Interactions</p> <ul style="list-style-type: none"> Rocks, soils, and sand are present in most areas where plants and animals live. There may also be rivers, streams, lakes, and ponds. (PreK-ESS2-2) <p>ESS2.C: The Roles of Water in Earth's Surface Processes</p> <ul style="list-style-type: none"> Water is found in the ocean, rivers, lakes, and ponds. (PreK-ESS2-3) <p>ESS2.D: Weather and Climate</p> <ul style="list-style-type: none"> Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time. (PreK-ESS2-4), (PreK-ESS2-5)
<i>Connections to other DCIs in Pre-K:</i>	
<i>Articulation of DCIs across grade-bands:</i>	
<i>Common Core State Standards Connections:</i>	
<i>ELA/Literacy – Data recording Mathematics: measurement of temperature</i>	

PreK-ESS3. Earth and Human Activity

PreK-ESS3-1. Engage in discussion and raise questions using examples about local resources, (including soil and water) humans use to meet their needs.

PreK-ESS3-2. Observe and discuss the impact of people’s activities on the local environment.

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

Engaging in Discussion/Argument from Evidence

- Engage in discussion before, during and after investigations. (PreK-ESS3-1), (PreK-ESS3-2)

Obtain, Evaluate, and Talk About Information

- Use first hand interaction with objects and organisms, media, and books to gather information. (PreK-ESS3-2)

Disciplinary Core Ideas

ESS3.A: Natural Resources

- Living things need water, air, and resources from the land, and they try to live in places that have the things they need. Humans use natural resources for everything they do: for example, they use soil and water to grow food, wood to burn to provide heat and clay and wood to build shelters. (PreK-ESS3-1)

ESS3.C: Human Impacts on Earth Systems

- Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things—for example, by reducing trash through reuse and recycling. (PreK-ESS3-2)

Connections to other DCIs in Pre-K:

Articulation of DCIs across grade-bands:

Common Core State Standards Connections:

ELA/Literacy –

Mathematics-

Life Science

PreK-LS1 From Molecules to Organisms: Structures and Processes	
PreK-LS1-1.	Compare, using descriptions and drawings, the external body parts of animals (including humans) and plants and explain functions of some of the observable body parts. [Clarification Statement: Examples can include comparison of humans having two legs and horses four, but both use legs to move.]
PreK-LS1-2.	Recognize that all plants and animals grow and change over time
PreK-LS1-3.	Explain that most animals have 5 senses they use to gather information about the world around them.
PreK-LS1-4.	Use their five senses in their exploration and play to gather information.
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :	
Science and Engineering Practices	Disciplinary Core Ideas
Developing and Using Models <ul style="list-style-type: none"> Represent (e.g., draw, use blocks, use clay, make a collage) findings. (PreK-LS1-1) Constructing Explanations/Theories and Evaluating Solutions (Engineering) <ul style="list-style-type: none"> Look for and describe patterns and relationships (PreK-LS1-2, PreK-LS1-3.) Obtaining, Evaluating, and Talking about Information <ul style="list-style-type: none"> Document experiences and thinking to communicate with others. (PreK-LS1-4) Planning and Carrying Out Investigations <ul style="list-style-type: none"> Use their senses and simple tools to observe, gather, and record data (e.g., dictate, draw, photograph, write). (PreK-LS1-4) 	LS1.A: Structure and Function <ul style="list-style-type: none"> All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive, grow, and produce more plants. (PreK-LS1-1) LS1.B: Growth and Development of Organisms <ul style="list-style-type: none"> Plants and animals have predictable characteristics at different stages of development. Plants and animals grow and change. (PreK-LS1-2, PreK-LS1-3) LS1.D: Information Processing <ul style="list-style-type: none"> Animals have body parts that capture and convey different kinds of information needed for growth and survival—for example, eyes for light, ears for sounds, and skin for temperature or touch. (PreK-LS1-4) (PreK-LS1-5)
<i>Connections to other DCIs in Pre-K:</i>	
<i>Articulation of DCIs across grade-bands:</i>	
<i>Common Core State Standards Connections:</i> ELA/Literacy – Mathematics - sequencing	

PreK-LS2 Ecosystems: Interactions, Energy, and Dynamics	
PreK-LS2-1.	Use evidence from animals and plants to define several characteristics of living things that distinguish them from non-living things.
PreK-LS2-2.	Using evidence from the local environment explain how familiar plants and animals meet their needs where they live. [Clarification statement: Basic needs include water, food, air, shelter, and, for most plants, light. Examples of evidence can include squirrels gathering nuts for the winter and plants growing in the presence of sun and water. The local environment includes the area around the student's school, home, or adjacent community.]
PreK-LS2-3	Give examples from the local environment of how animals and plants are dependent on one another to meet their basic needs.
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :	
Science and Engineering Practices	Disciplinary Core Ideas
Engaging in Discussion/Argument from Evidence <ul style="list-style-type: none"> Support thinking with evidence. (PreK-LS2-1) Engage in discussion before, during, and after investigations Constructing Explanations/Theories and Evaluating Solutions (Engineering) <ul style="list-style-type: none"> Construct theories based in experience about what might be going on. (PreK-LS2-2) Look for and describe patterns and relationships (PreK-LS2-3) 	LS2.A: Interdependent Relationships in Ecosystems <ul style="list-style-type: none"> Animals depend on their surroundings to get what they need, including food, water, shelter, and a favorable temperature. Animals depend on plants or other animals for food. Plants depend on air, water, minerals (in the soil), and light to grow. Animals can move around, but plants cannot, and they often depend on animals for pollination or to move their seeds around. Different plants survive better in different settings because they have varied needs for water, minerals, and sunlight. (Pre-K LS2-1, PreK-LS2-2, PreK-LS2-3) LS2.B: Cycles of Matter and Energy Transfer in Ecosystems <ul style="list-style-type: none"> Organisms obtain the materials they need to grow and survive from the environment. (PreK-LS2-2, PreK-LS2-3)
<i>Connections to other DCIs in Pre-K:</i>	
<i>Articulation of DCIs across grade-bands:</i>	
<i>Common Core State Standards Connections:</i> ELA/Literacy – Mathematics	

PreK-LS3 Variation of Traits	
PreK-LS3-1. Use observations to explain that young plants and animals are like but not exactly like their parents. [Clarification statement: Examples of observations include puppies that look similar but not exactly the same as their parents.]	
PreK-LS3-2. Use observation to recognize differences and similarities among themselves and their friends.	
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :	
Science and Engineering Practices	Disciplinary Core Ideas
Engaging in Discussion/Argument from Evidence <ul style="list-style-type: none"> ▪ Support thinking with evidence. (PreK-LS3-1) Constructing Explanations/Theories and Evaluating Solutions (Engineering) <ul style="list-style-type: none"> ▪ Look for and describe patterns and relationships (PreK-LS3-1, PreK-LS3-2) 	LS3.A: Inheritance of Traits <ul style="list-style-type: none"> ▪ Young animals are very much, but not exactly, like their parents and also resemble other animals of the same kind. (PreK-LS3-1) ▪
<i>Connections to other DCIs in Pre-K:</i>	
<i>Articulation of DCIs across grade-bands:</i>	
<i>Common Core State Standards Connections:</i>	
<i>ELA/Literacy –</i>	
<i>ELA - Mathematics</i>	

Physical Sciences

PreK-PS1. Matter and Its Interactions	
PreK-PS1-1.	Raise questions and investigate the differences between liquids and solids and develop awareness that a liquid can become a solid and vice versa.
PreK-PS1-2.	Investigate the natural and human-made natural and human-made objects, describe, compare, sort and classify objects based on observable physical characteristics, uses, and whether something is manufactured or occurs in nature.
PreK-PS1-3.	Differentiate between the properties of an object and those of the material of which it is made.
PreK-PS1-4.	Recognize through investigation that physical objects and materials can change under different circumstances. (Clarification statement: Changes include building up or breaking apart, mixing, dissolving, or changing state.)
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :	
Science and Engineering Practices Asking Questions and Solving Problems/Designing Things (Engineering) <ul style="list-style-type: none"> Observe and ask questions about observable phenomena (objects, materials, organisms or events). (PreK-PS1-1) Planning and Carrying Out Investigations <ul style="list-style-type: none"> Use their senses and simple tools to observe, gather, and record data. (PreK-PS1-2, PreK-PS1-3) Constructing Explanations/Theories and Evaluating Solutions <ul style="list-style-type: none"> Construct theories based in experience about what might be going on. (PreK-PS1-1, PreK-PS1-4) Use evidence to support a theory or solution (PreK-PS1-1, PreK-PS1-4) 	Disciplinary Core Ideas PS1.A: Structure and Properties of Matter <ul style="list-style-type: none"> Different kinds of matter exist (e.g., wood, metal, water), and many of them can be either solid or liquid, depending on temperature. (PreK-PS1-1) Objects and materials can be described and classified by their observable properties (e.g., visual, aural, textural), by their uses, and by whether they occur naturally or are manufactured. Different properties are suited to different purposes. A great variety of objects can be built up from a small set of pieces (e.g., blocks, construction sets). Objects or samples of a substance can be weighed, and their size can be described and measured. (Boundary: volume is introduced only for liquid measure.) (PreK-PS1-2), (PreK-PS1-3) PS1.B: Chemical Reactions <ul style="list-style-type: none"> Materials and objects can change under different circumstances. Sometimes these changes are reversible (e.g., melting and freezing, taking something apart and putting it back together), and sometimes they are not (e.g., baking a cake, burning fuel, mixing certain substances.) (PreK-PS1-4)
<i>Connections to other DCIs in Pre-K:</i>	
<i>Articulation of DCIs across grade-bands:</i>	
<i>Common Core State Standards Connections:</i> ELA/Literacy – Mathematics -	

PreK-PS2. Motion and Stability: Forces and Interactions	
PreK-PS2-1.	Using evidence, discuss ideas about what is making something move the way it does and how some movements can be controlled.
PreK-PS2-2.	Through experience, develop awareness of factors that influence whether things stand or fall. (Clarification statement: Examples of factors in children's construction play include using a broad foundation when building,, considering the strength of materials, and using balanced weight distribution in a block building.)
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :	
Science and Engineering Practices Engaging in Discussion/Argument from Evidence <ul style="list-style-type: none"> Engage in discussion before, during and after investigations (PreK- PS4-1) Support thinking with evidence. (PreK-PS2-1) Planning and Carrying Out Investigations <ul style="list-style-type: none"> Plan and implement investigations using simple equipment; designing/building a solution to a problem. (PreK-PS2-1, PreK-PS2-2), Constructing Explanations/Theories and Evaluating Solutions (Engineering) <ul style="list-style-type: none"> Look for and describe patterns and relationships (PreK-PS2-2) 	Disciplinary Core Ideas PS2.A: Forces and Motion <ul style="list-style-type: none"> Objects pull or push each other when they collide or are connected. Pushes and pulls can have different strengths and directions. Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. (PreK-PS2-1), (PreK-PS2-2) PS2.B: Types of Interactions <ul style="list-style-type: none"> When objects touch or collide, they push on one another and can change motion or shape. (PreK-PS2-2)
<i>Connections to other DCIs in PreK:</i>	
<i>Articulation of DCIs across grade-bands:</i>	

PreK-PS4. Waves and Their Applications in Technologies for Information Transfer	
<p>PreK-PS4-1. Investigate different sounds made by different objects and different materials and reason discuss explanations about what is causing the sounds. Through play and investigations, identify ways to manipulate different objects and materials that make sound to change volume and pitch.</p> <p>PreK-PS4-2. Connect daily experience and investigations to demonstrate the relationships between the size and shape of shadows, the objects creating the shadow, and the light source.</p>	
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> .	
<p>Science and Engineering Practices</p> <p>Planning and Carrying Out Investigations</p> <ul style="list-style-type: none"> ▪ Plan and implement investigations using simple equipment; designing/building a solution to a problem. (PreK-PS4-1) ▪ Using their senses and simple tools to observe, gather and record data. (PreK-PS4-1, PreK-PS4-2) <p>Engaging in Discussion/Argument from Evidence</p> <ul style="list-style-type: none"> ▪ Engaging in discussion before, during, and after investigations PreK-PS4-1) <p>Constructing Explanations/Theories and Evaluating Solutions (Engineering)</p> <ul style="list-style-type: none"> ▪ Construct theories based in experience about what might be going on. (PreK-PS4-2) 	<p>Disciplinary Core Ideas</p> <p>PS4.A: Wave Properties</p> <ul style="list-style-type: none"> ▪ Sound can make matter vibrate, and vibrating matter can make sound. Different objects and materials make different sounds. The pitch and volume of sound can be changed. (PreK-PS4-1), (PreK-PS4-2) <p>PS2.B: Electromagnetic Radiation</p> <ul style="list-style-type: none"> ▪ 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 (i.e., on the other side from the light source), where the light cannot reach. The size and shape of a shadow depend on several factors(i.e. the orientation of the object, the location of the light source, and the distances between light source, object, and shadow. (PreK-PS4-3), (PreK-PS4-4)
<i>Connections to other DCIs in first grade:</i>	
<i>Articulation of DCIs across grade-bands:</i>	
<i>Common Core State Standards Connections:</i>	
<i>ELA/Literacy –</i>	
<i>Mathematics -</i>	