



PLTW Launch Standards Guide

South Carolina College- and Career-Ready
Science Standards 2021



PLTW Launch (PreK-5) is designed to support your learning needs. The modules are developed to ensure an unmatched experience, combining three-dimensional learning; unique, problem-based instructional approach; real-world applied learning; as well as Spanish language options – all in one program.

This Standards Guides shows how each PLTW Launch module supports the South Carolina College- and Career-Ready Science Standards. Because schools need the flexibility to implement the curriculum in the way that best meets their students' needs, PLTW Launch is designed to support a wide range of implementations. Whether the modules are offered in all classrooms, as a specials rotation, as grade level rotations, as an after-school program, or even as a summer learning implementation, PLTW Launch offers the flexibility to meet your needs.

Use this Standards Guide in combination with the [Module Descriptions PDF](#) as planning tools to explore how you can implement PLTW Launch as your elementary learning solution.



| | | Performance Expectation | PLTW Launch Modules |
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| Motion and Stability: Forces and Interactions (PS2) | K-PS2-1 | Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object. | Pushes and Pulls |
| | K-PS2-2 | Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull. | Pushes and Pulls |
| Energy (PS3) | K-PS3-1 | Make observations to determine the effect of sunlight on Earth's surface. | Sunlight and Weather |
| | K-PS3-2 | Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area. | Sunlight and Weather |
| From Molecules to Organisms: Structures and Processes (LS1) | K-LS1-1 | Use observations to describe patterns of what plants and animals (including humans) need to survive. | Living Things: Needs and Impacts |
| Earth's Systems (ESS2) | K-ESS2-1 | Use and share observations of local weather conditions to describe patterns over time. | Sunlight and Weather |
| | K-ESS2-2 | Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. | Living Things: Needs and Impacts |
| Earth and Human Activity (ESS3) | K-ESS3-1 | Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live. | Living Things: Needs and Impacts Animals and Algorithms |
| | K-ESS3-2 | Ask questions to obtain information about the purpose of weather forecasting to prepare for and respond to severe weather. | Sunlight and Weather |
| | K-ESS3-3 | Obtain and communicate information to define problems related to human impact on the local environment. | Living Things: Needs and Impacts |

| | Standard | Performance Expectation | PLTW Launch Modules |
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| Waves and their Applications in Technologies for Information Transfer (PS4) | 1-PS4-1 | Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. | Light and Sound |
| | 1-PS4-2 | Make observations to support an evidence-based claim that objects in darkness can be seen only when illuminated by light sources. | Light and Sound |
| | 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. | Light and Sound |
| | 1-PS4-4 | Use tools and materials to design and build a device that uses light or sound to communicate over a distance. | Light and Sound |
| From Molecules to Organisms: Structures and Processes (LS1) | 1-LS1-1 | Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs. | Animal Adaptations Designs Inspired by Nature |
| | 1-LS1-2 | Obtain information from multiple sources to determine patterns in parent and offspring behavior that help offspring survive. | Designs Inspired by Nature |
| Heredity: Inheritance and Variation of Traits (LS3) | 1-LS3-1 | Make observations to support an evidence-based claim that most young are like, but not exactly like, their parents. | Designs Inspired by Nature |
| Earth's Place in the Universe (ESS1) | 1-ESS1-1 | Use observations of the sun, moon, and stars to describe patterns that can be predicted. | Light: Observing the Sun, Moon, and Stars |
| | 1-ESS1-2 | Make observations at different times of year to relate the amount of daylight to the time of year. | Light: Observing the Sun, Moon, and Stars |

Second Grade

| | Standard | Performance Expectation | PLTW Launch Modules |
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| Matter and Its Interactions (PS1) | 2-PS1-1 | Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. | Materials Science: Properties of Matter |
| | 2-PS1-2 | Analyze data obtained from tests to determine which materials have the best properties for an intended purpose. | Materials Science: Properties of Matter Materials Science: Form and Function |
| | 2-PS1-3 | Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object. | Materials Science: Properties of Matter Materials Science: Form and Function |
| | 2-PS1-4 | Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. | Materials Science: Properties of Matter |
| Ecosystems: Interactions, Energy, and Dynamics (LS2) | 2-LS2-1 | Plan and conduct an investigation to determine what plants need to grow. | Living Things: Diversity of Life |
| | 2-LS2-2 | Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants. | Materials Science: Form and Function |
| Biological Evolution: Unity and Diversity (LS4) | 2-LS4-1 | Make observations of plants and animals to compare patterns of diversity within different habitats. | Living Things: Diversity of Life |
| Earth's Place in the Universe (ESS1) | 2-ESS1-1 | Use information from several sources to provide evidence that Earth events can occur rapidly or slowly. | The Changing Earth |
| Earth's Systems (ESS2) | 2-ESS2-1 | Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. | The Changing Earth |
| | 2-ESS2-2 | Develop a model to represent the shapes and kinds of land and bodies of water in an area. | The Changing Earth |
| | 2-ESS2-3 | Obtain information to identify where water is found on Earth and that it can be solid or liquid. | The Changing Earth |
| Earth and Human Activity (ESS3) | 2-ESS3-1 | Design solutions to address human impacts on natural resources in the local environment. | Materials Science: Form and Function |

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| Motion and Stability: Forces and interactions (PS2) | 3-PS2-1 | Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. | Stability and Motion: Science of Flight Stability and Motion: Forces and Interactions |
| | 3-PS2-2 | Make observations and measurements of an object’s motion to provide evidence that a pattern can be used to predict future motion. | Stability and Motion: Science of Flight Stability and Motion: Forces and Interactions |
| | 3-PS2-3 | Ask questions to determine cause-and-effect relationships of electric interactions and magnetic interactions between two objects not in contact with each other. | Stability and Motion: Forces and Interactions |
| | 3-PS2-4 | Develop possible solutions to a simple design problem by applying scientific ideas about magnets. | Stability and Motion: Forces and Interactions |
| From Molecules to Organisms: Structures and Processes (LS1) | 3-LS1-1 | Develop and use models to describe how organisms change in predictable patterns during their unique and diverse life cycles. | Life Cycles and Survival |
| Ecosystems: Interactions, Energy, and Dynamics (LS2) | 3-LS2-1 | Construct an argument that some animals form groups that help members survive. | Life Cycles and Survival |
| Heredity: Inheritance and Variation of Traits (LS3) | 3-LS3-1 | Analyze and interpret data to provide evidence that plants and animals have inherited traits that vary within a group of similar organisms. | Variation of Traits |
| | 3-LS3-2 | Use evidence to support the explanation that traits can be influenced by the environment. | Variation of Traits |
| Biological Evolution: Unity and Diversity (LS4) | 3-LS4-1 | Analyze and interpret data from fossils to provide evidence of organisms and the environments in which they lived long ago. | Environmental Changes |
| | 3-LS4-2 | Use evidence to construct an explanation for how the variations in traits among individuals of the same species may provide advantages in surviving and producing offspring. | Variation of Traits |
| | 3-LS4-3 | Construct an argument with evidence that in a particular habitat some organisms can thrive, struggle to survive, or fail to survive. | Environmental Changes |
| | 3-LS4-4 | Make a claim about the effectiveness of a solution to a problem caused when the environment changes and affects organisms living there. | Environmental Changes |
| Earth’s Systems (ESS2) | 3-ESS2-1 | Represent data in tables and graphical displays of typical weather conditions during a particular season to identify patterns and make predictions. | Weather: Factors and Hazards |
| | 3-ESS2-2 | Obtain and combine information to describe climate patterns in different regions of the world. | Weather: Factors and Hazards |
| Earth and Human Activity (ESS3) | 3-ESS3-1 | Make a claim about the effectiveness of a design solution that reduces the impacts of a weather related hazard. | Weather: Factors and Hazards |

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| Energy (PS3) | 4-PS3-1 | Use evidence to construct an explanation relating the speed of an object to the energy of that object. | Energy Exploration |
| | 4-PS3-2 | Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. | Energy Exploration |
| | 4-PS3-3 | Ask questions and predict outcomes about the changes in energy that occur when objects collide. | Energy Exploration |
| | 4-PS3-4 | Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. | Energy Exploration |
| Waves and their Applications in Technologies for Information Transfer (PS4) | 4-PS4-1 | Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. | Waves and Properties of Light |
| | 4-PS4-2 | Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. | Waves and Properties of Light |
| | 4-PS4-3 | Generate and compare multiple solutions that use patterns to transmit information. | Input/Output: Computer Systems |
| From Molecules to Organisms: Structures and Processes (LS1) | 4-LS1-1 | Construct an argument that plants and animals have internal and external structures that function together in a system to support survival, growth, behavior, and reproduction. | Organisms: Structure and Function |
| | 4-LS1-2 | Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. | Organisms: Structure and Function |
| Earth's Place in the Universe (ESS1) | 4-ESS1-1 | Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. | Earth: Past, Present, and Future |
| Earth's Systems (ESS2) | 4-ESS2-1 | Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. | Earth: Past, Present, and Future |
| | 4-ESS2-2 | Analyze and interpret data from maps to describe patterns of Earth's features. | Earth: Past, Present, and Future |
| Earth and Human Activity (ESS3) | 4-ESS3-1 | Obtain and combine information to describe that energy and fuels are derived from natural resources and how their uses affect the environment. | Earth: Human Impact and Natural Disasters |
| | 4-ESS3-2 | Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. | Earth: Human Impact and Natural Disasters |

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| Matter and Its Interactions (PS1) | 5-PS1-1 | Develop a model to describe that matter is made of particles too small to be seen. | Matter: Properties and Reactions |
| | 5-PS1-2 | Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. | Matter: Properties and Reactions |
| | 5-PS1-3 | Make observations and measurements to identify materials based on their properties. | Matter: Properties and Reactions |
| | 5-PS1-4 | Conduct an investigation to determine whether the mixing of two or more substances results in new substances. | Matter: Properties and Reactions |
| Motion and Stability: Forces and Interactions (PS2) | 5-PS2-1 | Support an argument that the gravitational force exerted by Earth on objects is directed down. | Earth's Water and Interconnected Systems |
| Energy (PS3) | 5-PS3-1 | Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. | Ecosystems: Flow of Matter and Energy |
| From Molecules to Organisms: Structures and Processes (LS1) | 5-LS1-1 | Support an argument with evidence that plants obtain materials they need for growth mainly from air and water. | Ecosystems: Flow of Matter and Energy |
| Ecosystems: Interactions, Energy, and Dynamics (LS2) | 5-LS2-1 | Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. | Ecosystems: Flow of Matter and Energy |
| Earth's Place in the Universe (ESS1) | 5-ESS1-1 | Support an argument with evidence that the apparent brightness of the sun compared to other stars is due to their relative distances from Earth. | Patterns in the Universe |
| | 5-ESS1-2 | Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. | Patterns in the Universe |
| Earth's Systems (ESS2) | 5-ESS2-1 | Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. | Earth's Water and Interconnected Systems |
| | 5-ESS2-2 | Describe and graph the amounts of saltwater and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. | Earth's Water and Interconnected Systems |
| Earth and Human Activity (ESS3) | 5-ESS3-1 | Evaluate potential solutions to problems that individual communities face in protecting the Earth's resources and environment. | Earth's Water and Interconnected Systems |