# PLTW Launch Standards Guide

**Utah Science with Engineering Education (SEEd) Standards K-5**

PLTW Launch (PreK-5) is designed to support your science 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 Guide shows how each PLTW Launch module supports the Utah Science wth Engineering Education (SEEd) Standards K-5. 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.

The module charts below provide a single-grade, up or down shift in the grade level recommendations to support the range of school needs across the country.

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.

PLTW LAUNCH

# Kindergarten

| | | SEEd Standard | PLTW Launch Modules |
|---|---|---|---|
| K.1: Weather Patterns | K.1.1 | Obtain, evaluate, and communicate information about local, observable weather conditions to describe patterns over time. | Sunlight and Weather (K) |
| | K.1.2 | Obtain, evaluate, and communicate information on the effect of forecasted weather patterns on human behavior. | Sunlight and Weather (K) |
| | K.1.3 | Carry out an investigation using the five senses, to determine the effect of sunlight on different surfaces and materials. | Sunlight and Weather (K) |
| | K.1.4 | Design a solution that will reduce the warming effect of sunlight on an area. | Sunlight and Weather (K) |
| K.2: Living Things and Their Surroundings | K.2.1 | Obtain, evaluate, and communicate information to describe patterns of what living things (plants and animals, including humans) need to survive. | Living Things: Needs and Impacts (K) |
| | K.2.2 | Obtain, evaluate, and communicate information about patterns in the relationships between the needs of different living things (plants and animals, including humans) and the places they live. | Living Things: Needs and Impacts (K), Animals and Algorithms (K) |
| | K.2.3 | Obtain, evaluate, and communicate information about how living things (plants and animals, including humans) affect their surroundings to survive. | Living Things: Needs and Impacts (K) |
| | K.2.4 | Design and communicate asolution to address the effects that living things (plants and animals, including humans) experience while trying to survive in their surroundings. | Living Things: Needs and Impacts (K) |
| K.3: Forces, Motion, and Interactions | K.3.1 | Plan and conduct an investigation to compare the effects of different strengths or different directions of forces on the motion of an object. | Pushes and Pulls (K) |
| | K.3.2 | Analyze data to determine how a design solution causes a change in the speed or direction of an object with a push or a pull. | Pushes and Pulls (K) |

# First Grade

| | | SEEd Standard | PLTW Launch Modules |
|---|---|---|---|
| 1.1: Seasons and Space Patterns | 1.1.1 | Obtain, evaluate, and communicate information about the movement of the Sun, Moon, and stars to describe predictable patterns. | Light: Observing the Sun, Moon and Stars (1) |
| | 1.1.2 | Obtain,evaluate,andcommunicate information about the patterns observed at different times of the year to relate the amount of daylight to the time of year. | Light: Observing the Sun, Moon and Stars (1) |
| | 1.1.3 | Design a device that measures the varying patterns of daylight. | Light: Observing the Sun, Moon and Stars (1) |
| 1.2: The Needs Of Living Things and Their Offspring | 1.2.1 | Plan and carry out an investigation to determine the effect of sunlight and water on plant growth. Emphasize investigations that test one variable at a time. | Living Things: Diversity of Life (2) |
| | 1.2.2 | Construct an explanation by observing patterns of external features of living things that survive in different locations. | Designs Inspired by Nature (1), Animal Adaptations (1) |
| | 1.2.3 | Obtain, evaluate, and communicate information about the patterns of plants and nonhuman animals that are alike, but not exactly like, their parents. | Designs Inspired by Nature (1) |
| | 1.2.4 | Construct an explanation of the patterns in the behaviors of parents and offspring which help offspring to survive. | Designs Inspired by Nature (1) |
| 1.3: Light and Sound | 1.3.1 | Plan and carry out an investigation to show the cause and effect relationship between sound and vibrating matter. | Light and Sound (1) |
| | 1.3.2 | Use a model to show the effect of light on objects. | Light and Sound (1) |
| | 1.3.3 | Plan and carry out an investigation to determine the effect of materials in the path of a beam of light. | Light and Sound (1) |
| | 1.3.4 | Designa device in which the structure of the device uses light or sound to solve the problem of communicating over a distance. | Light and Sound (1) |

## Second Grade

| | | SEEd Standard | PLTW Launch Modules |
|---|---|---|---|
| 2.1: Changes In The Earth's Surface | 2.1.1 | Develop and use models illustrating the patterns of landforms and water on Earth. | The Changing Earth (2) |
| | 2.1.2 | Standard 2.1.2 Construct an explanation about changes in Earth's surface that happen quickly or slowly. | The Changing Earth (2) |
| | 2.1.3 | Design solutions to slow or prevent wind or water from changing the shape of land. | The Changing Earth (2) |
| 2.2: Living Things and Their Habitats | 2.2.1 | Obtain, evaluate, and communicate information about patterns of living things (plants and animals, including humans) in different habitats. | Living Things: Diversity of Life (2) |
| | 2.2.2 | Plan and carry out an investigation of the structure and function of plant and animal parts in different habitats. | Animal Adaptations (1) |
| | 2.2.3 | Develop and use a model that mimics the function of an animal dispersing seeds or pollinating plants. | Materials Science: Form and Function (2) |
| | 2.2.4 | Design a solution to a human problem by mimicking the structure and function of plants and/or animals and how they use their external parts to help them survive, grow, and meet their needs. | Designs Inspired by Nature (1) |
| 2.3: Properties Of Matter | 2.3.1 | Plan and carry out an investigation to classify different kinds of materials based on patterns in their observable properties. | Materials Science: Properties of Matter (2) |
| | 2.3.2 | Construct an explanation showing how the properties of materials influence their intended use and function. | Materials Science: Properties of Matter (2) |
| | 2.3.3 | Develop and use a model to describe how an object, made of a small set of pieces, can be disassembled and reshaped into a new object with a different function. | Materials Science: Properties of Matter (2) |
| | 2.3.4 | Obtain, evaluate, and communicate information about changes in matter caused by heating or cooling. Emphasize that some changes can be reversed and some cannot. | Materials Science: Properties of Matter (2) |

## Third Grade

| | | SEEd Standard | PLTW Launch Modules |
|---|---|---|---|
| 3.1: Weather and Climate Patterns | 3.1.1 | Analyze and interpret data to reveal patterns that indicate typical weather conditions expected during a particular season. | Weather: Factors and Hazards (3) |
| | 3.1.2 | Obtain and communicate information to describe climate patterns in different regions of the world. | Weather: Factors and Hazards (3) |
| | 3.1.3 | Design a solution that reduces the effects of a weather-related hazard. | Weather: Factors and Hazards (3) |
| 3.2: Effects of Traits On Survival | 3.2.1 | Develop and use models to describe changes that organisms go through during their life cycles. | Life Cycles and Survival (3) |
| | 3.2.2 | Analyze and interpret data to identify patterns of traits that plants and animals have inherited from parents. | Variation of Traits (3) |
| | 3.2.3 | Construct an explanation that the environment can affect the traits of an organism. | Variation of Traits (3) |
| | 3.2.4 | Construct an explanation showing how variations in traits and behaviors can affect the ability of an individual to survive and reproduce. | Variation of Traits (3) |
| | 3.2.5 | Engage in argument from evidence that in a particular habitat (system) some organisms can survive well, some survive less well, and some cannot survive at all. | Environmental Changes (3) |
| | 3.2.6 | Design a solution to a problem caused by a change in the environment that impacts the types of plants and animals living in that environment. | Environmental Changes (3) |
| 3.3 Force Affects Motion | 3.3.1 | Plan and carry out investigations that provide evidence of the effects of balanced and unbalanced forces on the motion of an object. | Stability and Motion: Science of Flight (3), Stability and Motion: Forces and Interactions (3) |
| | 3.3.2 | Analyze and interpret data from observations and measurements of an object's motion to identify patterns in its motion that can be used to predict future motion. | Stability and Motion: Science of Flight (3), Stability and Motion: Forces and Interactions (3) |
| | 3.3.3 | Construct an explanation that the gravitational force exerted by Earth causes objects to be directed downward, toward the center of the spherical Earth. | Standard not currently supported. |
| | 3.3.4 | Ask questions to plan and carry out an investigation to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. | Stability and Motion: Forces and Interactions (3) |
| | 3.3.5 | Design a solution to a problem in which a device functions by using scientific ideas about magnets. | Stability and Motion: Forces and Interactions (3) |

## Fourth Grade

| | | SEEd Standard | PLTW Launch Modules |
|---|---|---|---|
| 4.1: Organisms Functioning In Their Enviroment | 4.1.1 | Construct an explanation from evidence that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. | Organisms: Structure and Function (4) |
| | 4.1.2 | Develop and use a model of a system to describe how animals receive different types of information from their environment through their senses, process the information in their brain, and respond to the information. | Organisms: Structure and Function (4) |
| | 4.1.3 | Analyze and interpret data from fossils to provide evidence of the stability and change in organisms and environments from long ago. | Earth: Past, Present, and Future (4), Environmental Changes (3) |
| | 4.1.4 | Engage in argument fromevidence based on patterns in rock layers and fossils found in those layers to support an explanation that environments have changed over time. | Earth: Past, Present, and Future (4) |
| 4.2: Energy Transfer | 4.2.1 | Construct an explanation to describe the cause and effect relationship between the speed of an object and the energy of that object. | Energy Exploration (4) |
| | 4.2.2 | Ask questions and make observations about the changes in energy that occur when objects collide. | Energy Exploration (4) |
| | 4.2.3 | Plan and carry out an investigation to gather evidence from observations that energy can be transferred from place to place by sound, light, heat, and electrical currents. | Energy Exploration (4) |
| | 4.2.4 | Design a device that converts energy from one form to another. | Energy Exploration (4) |
| 4.3: Wave Patterns | 4.3.1 | Develop and use a model to describe the regular patterns of waves. | Waves and the Properties of Light (4) |
| | 4.3.2 | Develop and use a model to describe how visible light waves reflected from objects enter the eye causing objects to be seen. | Waves and the Properties of Light (4) |
| | 4.3.3 | Design a solution to an information transfer problem using wave patterns. | Waves and the Properties of Light (4) |
| 4.4: Observable Patterns In The Sky | 4.4.1 | Construct an explanation that differences in the apparent brightness of the Sun compared to other stars is due to the relative distance (scale) of stars from Earth. | Patterns in the Universe (5) |
| | 4.4.2 | Analyze and interpret data of observable patterns to show that Earth rotates on its axis and revolves around the Sun. | Patterns in the Universe (5) |

# Fifth Grade

| | | SEEd Standard | PLTW Launch Modules |
|---|---|---|---|
| Strand 5.1: Characteristics and Interactions of Earth's Systems | 5.1.1 | Analyze and interpret data to describe patterns of Earth's features. | Earth: Past, Present and Future (4) |
| | 5.1.2 | Use mathematics and computational thinking to compare thequantity of saltwater and freshwater in various reservoirs to provide evidence for the distribution of water on Earth. | Earth: Past, Present and Future (4) |
| | 5.1.3 | Ask questions to plan and carry out investigations that provide evidence for the effects of weathering and the rate of erosion on the geosphere. | Earth: Past, Present and Future (4) |
| | 5.1.4 | Develop a model to describe interactions between Earth's systemsincluding the geosphere, biosphere, hydrosphere, and/or atmosphere. | Earth's Water and Interconnected Systems (5) |
| | 5.1.5 | Design solutions to reduce the effects of naturally occurring events that impact humans. | Earth: Human Impact and Natural Disasters (4) |
| Strand 5.2: Properties and Changes of Matter | 5.2.1 | Develop and use a model to describe that matter is made of particleson a scale that is too small to be seen. | Matter: Properties and Reactions (5) |
| | 5.2.2 | Ask questions to plan and carry out investigations to identifysubstances based on patterns of their properties. | Matter: Properties and Reactions (5) |
| | 5.2.3 | Plan and carry out investigations to determine the effect of combiningtwo or more substances. | Matter: Properties and Reactions (5) |
| | 5.2.4 | Use mathematics and computational thinking to provide evidencethat regardless of the type of change that occurs when heating, cooling, or combining substances, the total weight of matter is conserved. | Matter: Properties and Reactions (5) |
| 5.3: Cycling of Matter In Ecosystems | 5.3.1 | Construct an explanation that plants use air, water, and energyfrom sunlight to produce plant matter needed for growth. | Ecosystems: Flow of Matter and Energy (5) |
| | 5.3.2 | Obtain, evaluate, and communicate information that animalsobtain energy and matter from the food they eat for body repair, growth, and motion and to maintain body warmth. | Ecosystems: Flow of Matter and Energy (5) |
| | 5.3.3 | Develop and use a model to describe the movement of matter amongplants, animals, decomposers, and the environment. | Ecosystems: Flow of Matter and Energy (5) |
| | 5.3.4 | Evaluate design solutions whose primary function is to conserve Earth's environments and resources. | Ecosystems: Flow of Matter and Energy (5) |