PLTW Launch Standards Guide

Texas Essential Knowledge and Skills (TEKS) - Science K-5 (2021)

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 Texas Essential Knowledge and Skills (TEKS) - Science K-5 (2021). 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

Strand	Concept	PLTW Launch Modules
(6) Matter and its properties. The student knows that objects have physical properties that determine how they are described and classified. The student is expected to identify and record observable physical properties of objects, including shape, color, texture, and material, and generate ways to classify objects. The student is expected to:	(A) identify and record observable physical properties of objects, including shape, color, texture, and material, and generate ways to classify objects.	Floating and Sinking (PreK) Structure and Function: Exploring Design (K)
(7) Force, motion, and energy. The student knows that forces cause changes in motion and position in everyday life. The student is expected to describe and predict how a magnet interacts with various materials and how magnets can be used to push or pull.	(A) describe and predict how a magnet interacts with various materials and how magnets can be used to push or pull.	This standard is currently not supported.
(8) Force, motion, and energy. The student knows that energy is everywhere and can be observed in everyday life. The student is expected to:	(A) communicate the idea that objects can only be seen when a light source is present and compare the effects of different amounts of light on the appearance of objects; and	Light and Sound (1)
	(B) demonstrate and explain that light travels through some objects and is blocked by other objects, creating shadows.	Light and Sound (1)
(9) Earth and space. The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:	(A) identify, describe, and predict the patterns of day and night and their observable characteristics; and	Light: Observing the Sun, Moon, and Stars (1)
	(B) observe, describe, and illustrate the Sun, Moon, stars, and objects in the sky such as clouds.	Light: Observing the Sun, Moon, and Stars (1)
(10) Earth and space. The student knows that the natural world includes earth materials and systems that can be observed. The student is expected to:	(A) describe and classify rocks by the observable properties of size, shape, color, and texture;	This standard is currently not supported.
	(B) observe and describe weather changes from day to day and over seasons; and	Sunlight and Weather (K)
	(C) identify evidence that supports the idea that air is all around us and demonstrate that wind is moving air using items such as a windsock, pinwheel, or ribbon.	This standard is currently not supported.
(11) Earth and space. The student knows that earth materials are important to everyday life. The student is expected to observe and generate examples of practical uses for rocks, soil, and water.	(A) observe and generate examples of practical uses for rocks, soil, and water.	This standard is currently not supported.
(12) Organisms and environments. The student knows that plants and animals depend on the environment to meet their basic needs for survival. The student is expected to:	(A) observe and identify the dependence of plants on air, sunlight, water, nutrients in the soil, and space to grow; and	Living Things: Needs and Impacts (K)
	(B) observe and identify the dependence of animals on air, water, food, space, and shelter.	Living Things: Needs and Impacts (K)
(13) Organisms and environments. The student knows that organisms resemble their parents and have structures and undergo processes that help them interact and survive within their environments. The student is expected to:	(A) identify the structures of plants, including roots, stems, leaves, flowers, and fruits;	Designs Inspired by Nature (1)
	(B) identify the different structures that animals have that allow them to interact with their environment such as seeing, hearing, moving, and grasping objects;	Animal Adaptations (1)
	(C) identify and record the changes from seed, seedling, plant, flower, and fruit in a simple plant life cycle; and	This standard is currently not supported.
	(D) identify ways that young plants resemble the parent plant.	Designs Inspired by Nature (1)

First Grade

Standard	Concept	PLTW Launch Modules
(6) Matter and its properties. The student knows that objects have physical properties that determine how they are described and classified. The student is expected to:	(A) classify objects by observable physical properties, including, shape, color, and texture, and attributes such as larger and smaller and heavier and lighter;	Structure and Function: Exploring Design (K) Materials Science: Properties of Matters (2)
	(B) explain and predict changes in materials caused by heating and cooling; and	Materials Science: Properties of Matter (2)
	(C) demonstrate and explain that a whole object is a system made of organized parts such as a toy that can be taken apart and put back together.	Materials Science: Properties of Matter (2)
(7) Force, motion, and energy. The student knows that forces cause changes in motion and position in everyday life. The student is expected to:	(A) explain how pushes and pulls can start, stop, or change the speed or direction of an object's motion; and	Pushes and Pulls (K)
	(B) plan and conduct a descriptive investigation that predicts how pushes and pulls can start, stop, or change the speed or direction of an object's motion.	Pushes and Pulls (K)
(8) Force, motion, and energy. The student knows that energy is everywhere and can be observed in everyday life. The student is expected to:	(A) investigate and describe applications of heat in everyday life such as cooking food or using a clothes dryer; and	This standard is currently not supported.
	(B) describe how some changes caused by heat may be reversed such as melting butter and other changes cannot be reversed such as cooking an egg or baking a cake.	Materials Science: Properties of Matter (2)
(9) Earth and space. The student knows that the natural world has recognizable patterns. The student is expected to describe and predict the patterns of seasons of the year such as order of occurrence and changes in nature.	(A) describe and predict the patterns of seasons of the year such as order of occurrence and changes in nature.	Sunlight and Weather (K)
(10) Earth and space. The student knows that the natural world includes earth materials that can be observed in systems and processes. The student is expected to:	(A) investigate and document the properties of particle size, shape, texture, and color and the components of different types of soils such as topsoil, clay, and sand;	This standard is currently not supported.
	(B) investigate and describe how water can move rock and soil particles from one place to another;	The Changing Earth (2)
	(C) compare the properties of puddles, ponds, streams, rivers, lakes, and oceans, including color, clarity, size, shape, and whether it is freshwater or saltwater; and	This standard is currently not supported.
	(D) describe and record observable characteristics of weather, including hot or cold, clear or cloudy, calm or windy, and rainy or icy, and explain the impact of weather on daily choices.	Sunlight and Weather (K)
(11) Earth and space. The student knows that earth materials and products made from these materials are important to everyday life. The student is expected to:	(A) identify and describe how plants, animals, and humans use rocks, soil, and water;	This standard is currently not supported.
	(B) explain why water conservation is important; and	This standard is currently not supported.
	(C) describe ways to conserve water such as turning off the faucet when brushing teeth and protect natural sources of water such as keeping trash out of bodies of water.	This standard is currently not supported.
(12) Organisms and environments. The student knows that the environment is composed of relationships between living organisms and nonliving components. The student is expected to:	(A) classify living and nonliving things based upon whether they have basic needs and produce young;	Living Things: Needs and Impacts (K)
	(B) describe and record examples of interactions and dependence between living and nonliving components in terrariums or aquariums; and	This standard is currently not supported.
	(C) identify and illustrate how living organisms depend on each other through food chains.	Living Things: Diversity of Life (2)
(13) Organisms and environments. The student knows that organisms resemble their parents and have structures and undergo processes that help them interact and survive within their environments. The student is expected to:	(A) identify the external structures of different animals and compare how those structures help different animals live, move, and meet basic needs for survival;	Designs Inspired by Nature (1)
	(B) record observations of and describe basic life cycles of animals, including a bird, a mammal, and a fish; and	This standard is currently not supported.
	(C) compare ways that young animals resemble their parents.	Designs Inspired by Nature (1)

Second Grade

Standard	Concept	PLTW Launch Modules
(6) Matter and its properties. The student knows that matter has physical properties that determine how it is described, classified, and used. The student is expected to:	(A)classify matter by observable physical properties, including texture, flexibility, and relative temperature, and identify whether a material is a solid or liquid;	Materials Science: Properties of Matter (2)
	(B) conduct a descriptive investigation to explain how physical properties can be changed through processes such as cutting, folding, sanding, melting, or freezing; and	Materials Science: Properties of Matter (2)
	(C) demonstrate that small units such as building blocks can be combined or reassembled to form new objects for different purposes and explain the materials chosen based on their physical properties.	Materials Science: Properties of Matter (2)
(7) Force, motion, and energy. The student knows that forces cause changes in motion and position in everyday life. The student is expected to:	(A) explain how objects push on each other and may change shape when they touch or collide; and	Stability and Motion: Science of Flight (3) Stability and Motion: Forces and Interactions (3)
	(B) plan and conduct a descriptive investigation to demonstrate how the strength of a push and pull changes an object's motion.	Stability and Motion: Science of Flight (3)
(8) Force, motion, and energy. The student knows that energy is everywhere and can be observed in everyday life. The student is expected to:	(A) demonstrate and explain that sound is made by vibrating matter and that vibrations can be caused by a variety of means, including sound;	Light and Sound (1)
	(B) explain how different levels of sound are used in everyday life such as a whisper in a classroom or a fire alarm; and	This standard is currently not supported.
	(C) design and build a device using tools and materials that uses sound to solve the problem of communicating over a distance.	Light and Sound (1)
(9) Earth and space. The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:	(A) describe the Sun as a star that provides light and heat and explain that the Moon reflects the Sun's light; and	Light: Observing the Sun, Moon, and Stars (1)
	(B) observe objects in the sky using tools such as a telescope and compare how objects in the sky are more visible and can appear different with a tool than with an unaided eye.	This standard is currently not supported.
(10) Earth and space. The student knows that the natural world includes earth materials that can be observed in systems and processes. The student is expected to:	(A) investigate and describe how wind and water move soil and rock particles across the Earth's surface such as wind blowing sand into dunes on a beach or a river carrying rocks as it flows;	The Changing Earth (2)
	(B) measure, record, and graph weather information, including temperature and precipitation; and	Weather: Factors and Hazards (3)
	(C) investigate different types of severe weather events such as a hurricane, tornado, or flood and explain that some events are more likely than others in a given region.	Weather: Factors and Hazards (3)
(11) Earth and space. The student knows that earth materials and products made from these materials are important to everyday life. The student is expected to:	(A) distinguish between natural and manmade resources; and	This standard is currently not supported.
	(B) describe how human impact can be limited by making choices to conserve and properly dispose of materials such as reducing use of, reusing, or recycling paper, plastic, and metal.	Environmental Changes (3)
(12) Organisms and environments. The student knows that living organisms have basic needs that must be met through interactions within their environment. The student is expected to:	(A) describe how the physical characteristics of environments, including the amount of rainfall, support plants and animals within an ecosystem;	Living Things: Diversity of Life (2)
	(B) create and describe food chains identifying producers and consumers to demonstrate how animals depend on other living things; and	This standard is currently not supported.
	(C) explain and demonstrate how some plants depend on other living things, wind, or water for pollination and to move their seeds around.	Materials Science: Form and Function (2)
(13) Organisms and environments. The student knows that organisms have structures and undergo processes that help them interact and survive within their environments. The student is expected to:	(A) identify the roots, stems, leaves, flowers, fruits, and seeds of plants and compare how those structures help different plants meet their basic needs for survival;	Materials Science: Form and Function (2) Variation of Traits (3)
	(B) record and compare how the structures and behaviors of animals help them find and take in food, water, and air;	Animal Adaptations (1) Designs Inspired by Nature (1)
	(C) record and compare how being part of a group helps animals obtain food, defend themselves, and cope with changes; and	Life Cycles and Survival (3)
	(D) investigate and describe some of the unique life cycles of animals where young animals do not resemble their parents, including butterflies and frogs.	Life Cycles and Survival (3)

Third Grade

Standard	Concept	PLTW Launch Modules
(6) Matter and energy. The student knows that matter has measurable physical properties that determine how matter is identified, classified, changed, and used. The student is expected to:	(A) measure, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float in water;	Stability and Motion: Forces and Interactions (3) Materials Science: Properties of Matter (2)
	(B) describe and classify samples of matter as solids, liquids, and gases and demonstrate that solids have a definite shape and that liquids and gases take the shape of their container;	Materials Science: Properties of Matter (2)
	(C) predict, observe, and record changes in the state of matter caused by heating or cooling in a variety of substances such as ice becoming liquid water, condensation forming on the outside of a glass, or liquid water being heated to the point of becoming water vapor (gas); and	Materials Science: Properties of Matter (2)
	(D) demonstrate that materials can be combined based on their physical properties to create or modify objects such as building a tower or adding clay to sand to make a stronger brick and justify the selection of materials based on their physical properties.	Materials Science: Properties of Matter (2) Materials Science: Form and Function (2)
(7) Force, motion, and energy. The student knows the nature of forces and the patterns of their interactions. The student is expected to:	(A) demonstrate and describe forces acting on an object in contact or at a distance, including magnetism, gravity, and pushes and pulls; and	Stability and Motion: Science of Flight (3) Stability and Motion: Forces and Interactions (3)
	(B) plan and conduct a descriptive investigation to demonstrate and explain how position and motion can be changed by pushing and pulling objects such as swings, balls, and wagons.	This standard is currently not supported.
(8) Force, motion, and energy. The student knows that energy is everywhere and can be observed in cycles, patterns, and systems. The student is expected to:	(A) identify everyday examples of energy, including light, sound, thermal, and mechanical; and	Energy Exploration (4)
	(B) plan and conduct investigations that demonstrate how the speed of an object is related to its mechanical energy.	Energy Exploration (4)
(9) Earth and space. The student knows there are recognizable objects and patterns in Earth's solar system. The student is expected to:	(A) construct models and explain the orbits of the Sun, Earth, and Moon in relation to each other; and	This standard is currently not supported.
	(B) identify the order of the planets in Earth's solar system in relation to the Sun.	This standard is currently not supported.
(10) Earth and space. The student knows that there are recognizable processes that change Earth over time. The student is expected to:	(A) compare and describe day-to-day weather in different locations at the same time, including air temperature, wind direction, and precipitation;	Weather: Factors and Hazards (3)
	(B) investigate and explain how soils such as sand and clay are formed by weathering of rock and by decomposition of plant and animal remains; and	Earth: Past, Present, and Future (4)
	(C) model and describe rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides.	Earth: Past, Present, and Future (4) Earth: Human Impact and Natural Disasters (4)
(11) Earth and space. The student understands how natural resources are important and can be managed. The student is expected to:	(A) explore and explain how humans use natural resources such as in construction, in agriculture, in transportation, and to make products;	Earth: Human Impact and Natural Disasters (4)
	(B) explain why the conservation of natural resources is important; and	Earth: Human Impact and Natural Disasters (4)
	(C) identify ways to conserve natural resources through reducing, reusing, or recycling.	Earth: Human Impact and Natural Disasters (4
(12) Organisms and environments. The student describes patterns, cycles, systems, and relationships within environments. The student is expected to:	(A) explain how temperature and precipitation affect animal growth and behavior through migration and hibernation and plant responses through dormancy;	This standard is currently not supported.
	(B) identify and describe the flow of energy in a food chain and predict how changes in a food chain such as removal of frogs from a pond or bees from a field affect the ecosystem;	Living Things: Diversity of Life (2)
	(C) describe how natural changes to the environment such as floods and droughts cause some organisms to thrive and others to perish or move to new locations; and	Environmental Changes (3)
	(D) identify fossils as evidence of past living organisms and environments, including common Texas fossils.	Environmental Changes (3)
(13) Organisms and environments. The student knows that organisms undergo similar life processes and have structures that function to help them survive within their environments. The student is expected to:	(A) explore and explain how external structures and functions of animals such as the neck of a giraffe or webbed feet on a duck enable them to survive in their environment; and	Organisms: Structure and Function (4)
	(B) explore, illustrate, and compare life cycles in organisms such as beetles, crickets, radishes, or lima beans.	Life Cycles and Survival (3)

Fourth Grade

Standard	Concept	PLTW Launch Modules
(6) Matter and energy. The student knows that matter has measurable physical properties that determine how matter is identified, classified, changed, and used. The student is expected to:	(A) classify and describe matter using observable physical properties, including temperature, mass, magnetism, relative density (the ability to sink or float in water), and physical state (solid, liquid, gas);	Matter: Properties and Reactions (5)
	(B) investigate and compare a variety of mixtures, including solutions that are composed of liquids in liquids and solids in liquids; and	Matter: Properties and Reactions (5)
	(C) demonstrate that matter is conserved when mixtures such as soil and water or oil and water are formed.	Matter: Properties and Reactions (5)
(7) Force, motion, and energy. The student knows the nature of forces and the patterns of their interactions. The student is expected to plan and conduct descriptive investigations to explore the patterns of forces such as gravity, friction, or magnetism in contact or at a distance on an object.	(A) plan and conduct descriptive investigations to explore the patterns of forces such as gravity, friction, or magnetism in contact or at a distance on an object.	Stability and Motion: Forces and Interactions (3)
(8) Force, motion, and energy. The student knows that energy is everywhere and can be observed in cycles, patterns, and systems. The student is expected to:	(A) investigate and identify the transfer of energy by objects in motion, waves in water, and sound;	Waves and the Properties of Light (4) Energy Exploration (4)
	(B) identify conductors and insulators of thermal and electrical energy; and	This standard is currently not supported.
	(C) demonstrate and describe how electrical energy travels in a closed path that can produce light and thermal energy.	Energy Exploration (4)
(9) Earth and space. The student recognizes patterns among the Sun, Earth, and Moon system and their effects. The student is expected to:	(A) collect and analyze data to identify sequences and predict patterns of change in seasons such as change in temperature and length of daylight; and	Weather: Factors and Hazards (3) Patterns in the Universe (5)
	(B) collect and analyze data to identify sequences and predict patterns of change in the observable appearance of the Moon from Earth.	Patterns in the Universe (5)
(10) Earth and space. The student knows that there are processes on Earth that create patterns of change. The student is expected to:	(A) describe and illustrate the continuous movement of water above and on the surface of Earth through the water cycle and explain the role of the Sun as a major source of energy in this process;	Earth's Water and Interconnected Systems (5)
	(B) model and describe slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice; and	Earth: Past, Present, and Future (4)
	(C) differentiate between weather and climate.	Weather: Factors and Hazards (3)
(11) Earth and space. The student understands how natural resources are important and can be managed. The student is expected to:	(A) identify and explain advantages and disadvantages of using Earth's renewable and nonrenewable natural resources such as wind, water, sunlight, plants, animals, coal, oil, and natural gas;	Earth: Human Impact and Natural Disasters (4)
	(B) explain the critical role of energy resources to modern life and how conservation, disposal, and recycling of natural resources impact the environment; and	Earth: Human Impact and Natural Disasters (4)
	(C) determine the physical properties of rocks that allow Earth's natural resources to be stored there.	This standard is currently not supported.
(12) Organisms and environments. The student describes patterns, cycles, systems, and relationships within environments. The student is expected to:	(A) investigate and explain how most producers can make their own food using sunlight, water, and carbon dioxide through the cycling of matter;	Ecosystems: Flow of Matter and Energy (5)
	(B) describe the cycling of matter and flow of energy through food webs, including the roles of the Sun, producers, consumers, and decomposers; and	Ecosystems: Flow of Matter and Energy (5)
	(C) identify and describe past environments based on fossil evidence, including common Texas fossils.	Environmental Changes (3) Earth: Past, Present, and Future (4)
(13) Organisms and environments. The student knows that organisms undergo similar life processes and have structures that function to help them survive within their environments. The student is expected to:	(A) explore and explain how structures and functions of plants such as waxy leaves and deep roots enable them to survive in their environment; and	Organisms: Structure and Function (4)
	(B) differentiate between inherited and acquired physical traits of organisms.	Variation of Traits (3)

Fifth Grade

Standard	Concept	PLTW Launch Modules
(6) Matter and energy. The student knows that matter has measurable physical properties that determine how matter is identified, classified, changed, and used. The student is expected to:	(A) compare and contrast matter based on measurable, testable, or observable physical properties, including mass, magnetism, relative density (sinking and floating using water as a reference point), physical state (solid, liquid, gas), volume, solubility in water, and the ability to conduct or insulate thermal energy and electric energy;	Matter: Properties and Reactions (5)
	(B) demonstrate and explain that some mixtures maintain physical properties of their substances such as iron filings and sand or sand and water;	Matter: Properties and Reactions (5)
	(C) compare the properties of substances before and after they are combined into a solution and demonstrate that matter is conserved in solutions; and	Matter: Properties and Reactions (5)
	(D) illustrate how matter is made up of particles that are too small to be seen such as air in a balloon.	Matter: Properties and Reactions (5)
(7) Force, motion, and energy. The student knows the nature of forces and the patterns of their interactions. The student is expected to:	(A) investigate and explain how equal and unequal forces acting on an object cause patterns of motion and transfer of energy; and	This standard is currently not supported.
	(B) design a simple experimental investigation that tests the effect of force on an object in a system such as a car on a ramp or a balloon rocket on a string.	This standard is currently not supported.
(8) Force, motion, and energy. The student knows that energy is everywhere and can be observed in cycles, patterns, and systems. The student is expected to:	(A) investigate and describe the transformation of energy in systems such as energy in a flashlight battery that changes from chemical energy to electrical energy to light energy;	Energy Exploration (4)
	(B) demonstrate that electrical energy in complete circuits can be transformed into motion, light, sound, or thermal energy and identify the requirements for a functioning electrical circuit; and	Energy Exploration (4)
	(C) demonstrate and explain how light travels in a straight line and can be reflected, refracted, or absorbed.	Waves and the Properties of Light (4)
(9) Earth and space. The student recognizes patterns among the Sun, Earth, and Moon system and their effects. The student is expected to demonstrate that Earth rotates on its axis once approximately every 24 hours and explain how that causes the day/night cycle and the appearance of the Sun moving across the sky, resulting in changes in shadow positions and shapes.	(A) demonstrate that Earth rotates on its axis once approximately every 24 hours and explain how that causes the day/night cycle and the appearance of the Sun moving across the sky, resulting in changes in shadow positions and shapes.	Patterns in the Universe (5)
(10) Earth and space. The student knows that there are recognizable patterns and processes on Earth. The student is expected to:	(A) explain how the Sun and the ocean interact in the water cycle and affect weather;	Earth's Water and Interconnected Systems (5)
	(B) model and describe the processes that led to the formation of sedimentary rocks and fossil fuels; and	Earth: Past, Present, and Future (4)
	(C) model and identify how changes to Earth's surface by wind, water, or ice result in the formation of landforms, including deltas, canyons, and sand dunes.	Earth: Past, Present, and Future (4)
(11) Earth and space. The student understands how natural resources are important and can be managed. The student is expected to design and explain solutions such as conservation, recycling, or proper disposal to minimize environmental impact of the use of natural resources.	(A) design and explain solutions such as conservation, recycling, or proper disposal to minimize environmental impact of the use of natural resources.	Earth: Human Impact and Natural Disasters (4)
(12) Organisms and environments. The student describes patterns, cycles, systems, and relationships within environments. The student is expected to:	(A) observe and describe how a variety of organisms survive by interacting with biotic and abiotic factors in a healthy ecosystem;	Ecosystems: Flow of Matter and Energy (5)
	(B) predict how changes in the ecosystem affect the cycling of matter and flow of energy in a food web; and	Ecosystems: Flow of Matter and Energy (5)
	(C) describe a healthy ecosystem and how human activities can be beneficial or harmful to an ecosystem.	Ecosystems: Flow of Matter and Energy (5)
(13) Organisms and environments. The student knows that organisms undergo similar life processes and have structures and behaviors that help them survive within their environments. The student is expected to:	(A) analyze the structures and functions of different species to identify how organisms survive in the same environment; and	Organisms: Structure and Function (4)
	(B) explain how instinctual behavioral traits such as turtle hatchlings returning to the sea and learned behavioral traits such as orcas hunting in packs increase chances of survival.	This standard is currently not supported.