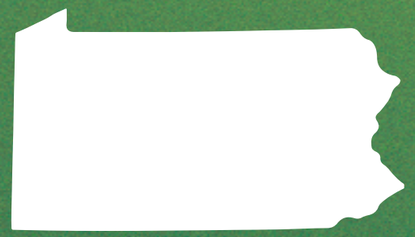
PLTW Launch Standards Guide

Pennsylvania Integrated Standards for Science, Environment, Ecology, Technology and Engineering



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 Pennsylvania Integrated Standards for Science, Environment, Ecology, Technology and Engineering (Grades 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.

Use this Crosswalk 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

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Please note: The information included in this document is subject to change. As with all course materials, we will continue to update as more information becomes available.

Kindergarten

	Standard	Objectives	PLTW Launch Modules
Earth and Space Sciences	Earth and Human Activity	Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.	Animals and Algorithms Sunlight and Weather Living Things: Needs and Impacts
		Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.	Sunlight and Weather
		Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.	Living Things: Needs and Impacts
	Earth's System	Use observations of local weather conditions to describe patterns over time.	Sunlight and Weather
		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
Life Science	From Molecules to Organisms: Structures and Processes	Use observations to describe patterns of what plants and animals (including humans) need to survive.	Living Things: Needs and Impacts
Physical Science	Motion and Stability: Forces and Interactions	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
		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	Make observations to determine the effect of sunlight on Earth's surface.	Sunlight and Weather
		Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.	Sunlight and Weather

First Grade

	Standard	Objectives	PLTW Launch Modules
Earth and Space Sciences	Earth's Place in the Universe	Use observations of the sun, moon, and stars to describe patterns that can be predicted.	Light: Observing the Sun, Moon and Stars
		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
Life Science	From Molecules to Organisms: Structures and Processes	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
		Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.	Designs Inspired by Nature
	Heredity: Inheritance and Variation of Traits	Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.	Designs Inspired by Nature
Physical Science	Waves and Their Applications in Technologies for Information Transfer	Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.	Light and Sound
		Make observations to construct an evidence-based account that objects can be seen only when illuminated.	Light and Sound
		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
		Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.	Light and Sound

Second Grade

	Standard	Objectives	PLTW Launch Modules
Earth and Space Sciences	Earth's Place in the Universe	Use information from several sources to provide evidence that Earth events can occur quickly or slowly.	The Changing Earth
	Earth's Systems	Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.	The Changing Earth
		Develop a model to represent the shapes and kinds of land and bodies of water in an area.	The Changing Earth
		Obtain information to identify where water is found on Earth and that it can be solid or liquid.	The Changing Earth
Life Science	Ecosystems: Interactions, Energy, and Dynamics	Plan and conduct an investigation to determine if plants need sunlight and water to grow.	The Diversity of Life
		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	Make observations of plants and animals to compare the diversity of life in different habitats.	Living Things: Diversity of Life
	Matter and its Interactions	Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.	Materials Science: Properties of Matter
		Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.	Materials Science: Properties of Matter Materials Science: Form and Function
		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
		Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.	Materials Science: Properties of Matter

Third Grade

	Standard	Objectives	PLTW Launch Modules
Earth and Space Sciences	Earth's Systems	Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.	Weather: Factors and Hazards
		Obtain and combine information to describe climates in different regions of the world.	Weather: Factors and Hazards
	Earth and Human Activity	Make a claim supported by evidence about the merit of a design solution that reduces the impacts of a weather-related hazard.	Weather: Factors and Hazards
Life Science	From Molecules to Organisms: Structures and Processes	Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.	Life Cycles and Survival
	Ecosystems: Interactions, Energy, and Dynamics	Construct an argument that some animals have physical and behavioral adaptations that help members survive.	Life Cycles and Survival
	Heredity: Inheritance and Variation of Traits	Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.	Variation of Traits
		Use evidence to support the explanation that traits can be influenced by the environment.	Variation of Traits
	Biological Evolution: Unity and Diversity	Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.	Environmental Changes
		Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.	Variation of Traits
		Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	Environmental Changes
		Make a claim supported by evidence about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.	Environmental Changes
Physical Science	Motion and Stability: Forces and Interactions	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
		Make and communicate observations and/or 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
		Ask questions 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
		Define a simple design problem that can be solved by applying scientific ideas about magnets.	Stability and Motion: Forces and Interactions

Fourth Grade

	Standard	Objectives	PLTW Launch Modules
Earth and Space Sciences	Earth's Place in the Universe	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	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
		Analyze and interpret data from maps to describe patterns of Earth's features.	Earth: Past, Present and Future
	Earth and Human Activity	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.	Earth: Human Impact and Natural Disasters
		Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.	Earth: Human Impact and Natural Disasters
Life Science	From Molecules to Organisms: Structures and Processes	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.	Organisms: Structure and Function
		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.	Input/Output: Human Brain Organisms: Structure and Function
Physical Science	Waves and Their Applications in Technologies for Information Transfer	Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.	Waves and the Properties of Light
		Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.	Waves and the Properties of Light
		Generate and compare multiple solutions that use patterns to transfer information.	Input/Output: Computer Systems
	Energy	Use evidence to construct an explanation relating the speed of an object to the energy of that object.	Energy Exploration
		Make and communicate observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.	Energy Exploration
		Ask questions and predict outcomes about the changes in energy that occur when objects collide.	Energy Exploration
		Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.	Energy Exploration

Fifth Grade

	Standard	Objectives	PLTW Launch Modules
Earth and Space Sciences	Earth's Place in the Universe	Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.	Patterns in the Universe
		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	Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.	Earth's Water and Interconnected Systems
		Describe and graph the amounts and percentages of water 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	Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.	Robotics and Automation Earth's Water and Interconnected Systems
		Generate and design possible solutions to a current environmental issue, threat, or concern.	Ecosystems: Flow of Matter and Energy Earth's Water and Interconnected Systems
Life Science	From Molecules to Organisms: Structures and Processes	Support an argument that plants get the materials they need for growth chiefly from air and water.	Ecosystems: Flow of Matter and Energy
	Ecosystems: Interactions, Energy, and Dynamics	Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.	Ecosystems: Flow of Matter and Energy
Physical Science	Matter and Its Interactions	Develop a model to describe that matter is made of particles too small to be seen.	Matter: Properties and Reactions
		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
		Make and communicate observations and measurements to identify materials based on their properties.	Matter: Properties and Reactions
		Conduct an investigation to determine whether the mixing of two or more substances results in new substances.	Matter: Properties and Reactions
		Interpret and analyze data and observations to make decisions about how to utilize materials based on their properties.	Matter: Properties and Reactions
	Motion and Stability: Forces and Interactions	Support an argument that the gravitational force exerted by Earth on objects is directed down.	Earth's Water and Interconnected Systems
	Energy	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