PLTW Launch Standards Guide

2023 Indiana Academic Standards Science K - 5

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 2023 Indiana Academic Standards Science (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 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	**Structure and Function: Exploring Design** K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	**Pushes and Pulls** K-PS2-1 K-PS2-2 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	**Structure and Function: Human Body** K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	**Animals and Algorithms** K-ESS3-1 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	**Sunlight and Weather** K-PS3-1 K-PS3-2 K-ESS2-1 K-ESS3-2 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	**Living Things: Needs and Impacts** K-LS1-1 K-ESS2-2 K-ESS3-3 K-ESS3-1 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	
1st Grade	**Light and Sound** 1-PS4-1 1-PS4-2 1-PS4-3 1-PS4-4 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	**Light: Observing the Sun, Moon, and Stars** 1-ESS1-1 1-ESS1-2 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	**Animal Adaptations** 1-LS1-1 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	**Animated Storytelling** K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	**Designs Inspired by Nature** 1-LS1-2 1-LS3-1 1-LS1-1 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3		
2nd Grade	**Materials Science: Properties of Matter** 2-PS1-1 2-PS1-2 2-PS1-3 2-PS1-4 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	**Materials Science: Form and Function** 2-PS1-2 2-PS1-3 2-LS2-2 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	**Grids and Games** K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	**The Changing Earth** 2-ESS1-1 2-ESS2-1 2-ESS2-2 2-ESS2-3 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	**Living Things: Diversity of Life** 2-LS2-1 2-LS4-1 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3		
3rd Grade	**Stability and Motion: Science of Flight** 3-PS2-1 3-PS2-2 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	**Stability and Motion: Forces and Interactions** 3-PS2-1 3-PS2-2 3-PS2-3 3-PS2-4 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	**Variation of Traits** 3-LS3-1 3-LS3-2 3-LS4-2 3-5-ETS1-1 3-5-ETS1-2	**Programming Patterns** 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	**Weather: Factors and Hazards** 3-ESS2-1 3-ESS2-2 3-ESS3-1 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	**Life Cycles and Survival** 3-LS1-1 3-LS2-1 3-5-ETS1-1 3-5-ETS1-2	**Environmental Changes** 3-LS4-1 3-LS4-3 3-LS4-4 3-5-ETS1-1 3-5-ETS1-2
4th Grade	**Input/Output: Computer Systems** 4-PS4-3 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	**Input/Output: Human Brain** 4-LS1-2 3-5-ETS1-1 3-5-ETS1-2	**Waves and the Properties of Light** 4-PS4-1 4-PS4-2 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	**Organisms: Structure and Function** 4-LS1-1 4-LS1-2 3-5-ETS1-1 3-5-ETS1-2	**Earth: Past, Present, and Future** 4-ESS1-1 4-ESS2-1 4-ESS2-2 3-5-ETS1-1 3-5-ETS1-2	**Earth: Human Impact and Natural Disasters** 4-ESS3-1 4-ESS3-2 3-5-ETS1-1 3-5-ETS1-2	**Energy Exploration** 4-PS3-1 4-PS3-2 4-PS3-3 4-PS3-4 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3
5th Grade	**Robotics and Automation** 5-ESS3-1 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	**Robotics and Automation: Challenge** 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	**Infection: Detection** 3-5-ETS1-1 3-5-ETS1-2	**Infection: Modeling and Simulation** 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	**Matter: Properties and Reactions** 5-PS1-1 5-PS1-2 5-PS1-3 5-PS1-4 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	**Ecosystems: Flow of Matter and Energy** 5-PS3-1 5-LS1-1 5-LS2-1 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	**Patterns in the Universe** 5-ESS1-1 5-ESS1-2 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	**Earth's Water and Interconnected Systems** 5-PS2-1 5-ESS2-1 5-ESS2-2 5-ESS3-1 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3

PE	PE Text (source listed below)	Module	Additional Module
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	
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	
K-LS1-1	Use observations to describe patterns of what plants and animals (including humans) need to survive.	Living Things: Needs and Impacts	
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	
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.	Animals and Algorithms	Living Things: Needs and Impacts
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	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	
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 construct an evidence-based account that objects can be seen only when illuminated.	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 solve the problem of communicating over a distance.	Light and Sound	
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	Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.	Designs Inspired By Nature	
1-LS3-1	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	
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	
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 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
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

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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	
2-LS2-1	Plan and conduct an investigation to determine if plants need sunlight and water 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	
2-LS4-1	Make observations of plants and animals to compare the diversity of life in different habitats.	Living Things: Diversity of Life	
2-ESS1-1	Use information from several sources to provide evidence that Earth events can occur quickly or slowly.	The Changing Earth	
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	
K-2-ETS1-1	Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	Connected to K-2 Modules	
K-2-ETS1-2	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	Connected to K-2 Modules	
K-2-ETS1-3	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	Connected to K-2 Modules	
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/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
3-PS2-3	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	
3-PS2-4	Define a simple design problem that can be solved by applying scientific ideas about magnets.	Stability and Motion: Forces and Interactions	
3-LS1-1	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	
3-LS2-1	Construct an argument that some animals form groups that help members survive.	Life Cycles and Survival	
3-LS3-1	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	
3-LS3-2	Use evidence to support the explanation that traits can be influenced by the environment.	Variation of Traits	
3-LS4-1	Analyze and interpret data from fossils to provide evidence of the 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 characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.	Variation of Traits	
3-LS4-3	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	
3-LS4-4	Make a claim 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	

PE	PE Text (source listed below)	Module	Additional Module
3-ESS2-1	Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.	Weather: Factors and Hazards	
3-ESS2-2	Obtain and combine information to describe climates in different regions of the world.	Weather: Factors and Hazards	
3-ESS3-1	Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.	Weather: Factors and Hazards	
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	
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 the 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 the Properties of Light	
4-PS4-3	Generate and compare multiple solutions that use patterns to transfer information.	Input/Output: Computer Systems	
4-LS1-1	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	
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.	Input/Output: Human Brain	Organisms: Structure and Function
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	
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	
4-ESS3-1	Obtain and combine information to describe that energy and fuels are derived from natural resources and that 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	
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	
5-PS2-1	Support an argument that the gravitational force exerted by Earth on objects is directed down.	Earth's Water and Interconnected Systems	
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	
5-LS1-1	Support an argument that plants get the materials they need for growth chiefly from air and water.	Ecosystems: Flow of Matter and Energy	

PE	PE Text (source listed below)	Module	Additional Module
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	
5-ESS1-1	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	
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	
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 salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.	Earth's Water and Interconnected Systems	
5-ESS3-1	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
3-5-ETS1-1	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.	Connected to 3-5 Modules	
3-5-ETS1-2	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	Connected to 3-5 Modules	
3-5-ETS1-3	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	Connected to 3-5 Modules	