PLTW Launch Standards Guide

Next Generation Sunshine State Standards

PLTW Launch (PreK-5) is designed to support your science/STEM 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 Next Generation Sunshine State Standards in Science. 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 represent 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

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.K.E.5.2 Light: Observing the Sun, Moon and Stars (1)	Recognize the repeating pattern of day and night.	Earth in Space and Time	Science	K	Earth and Space Science
SC.K.E.5.3 Light: Observing the Sun, Moon and Stars (1)	Recognize that the Sun can only be seen in the daytime.	Earth in Space and Time	Science	K	Earth and Space Science
SC.K.E.5.4 Light: Observing the Sun, Moon and Stars (1)	Observe that sometimes the Moon can be seen at night and sometimes during the day.	Earth in Space and Time	Science	K	Earth and Space Science
SC.K.L.14.3 Animal Adaptations (1)	Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do.	Organization and Development of Living Organisms	Science	K	Life Science
SC.K.N.1.1 Supported by all first grade PLTW Launch modules	Collaborate with a partner to collect information.	The Practice of Science	Science	K	Nature of Science
SC.K.N.1.2 Light and Sound (1) Light: Observing the Sun, Moon and Stars (1) Animal Adaptations (1)	Make observations of the natural world and know that they are descriptors collected using the five senses.	The Practice of Science	Science	K	Nature of Science
SC.K.N.1.3 Supported by all first grade PLTW Launch modules	Keep records as appropriate -- such as pictorial records -- of investigations conducted.	The Practice of Science	Science	K	Nature of Science
SC.K.N.1.4 Supported by all first grade PLTW Launch modules	Observe and create a visual representation of an object which includes its major features.	The Practice of Science	Science	K	Nature of Science
SC.K.N.1.5 Supported by all first grade PLTW Launch modules	Recognize that learning can come from careful observation.	The Practice of Science	Science	K	Nature of Science

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.K.P.8.1 Animal Adaptations (1)	Sort objects by observable properties, such as size, shape, color, temperature (hot or cold), weight (heavy or light) and texture.	Properties of Matter	Science	K	Physical Science
SC.K.P.10.1 Light and Sound (1)	Observe that things that make sound vibrate.	Forms of Energy	Science	K	Physical Science
SC.1.E.5.1 Light: Observing the Sun, Moon and Stars (1)	Observe and discuss that there are more stars in the sky than anyone can easily count and that they are not scattered evenly in the sky.	Earth in Space and Time	Science	1	Earth and Space Science
SC.1.E.5.4 Light: Observing the Sun, Moon and Stars (1)	Identify the beneficial and harmful properties of the Sun.	Earth in Space and Time	Science	1	Earth and Space Science
SC.1.E.6.3 The Changing Earth (2)	Recognize that some things in the world around us happen fast and some happen slowly.	Earth Structures	Science	1	Earth and Space Science
SC.1.L.14.1 Animal Adaptations (1)	Make observations of living things and their environment using the five senses.	Organization and Development of Living Organisms	Science	1	Life Science
SC.1.L.14.2 Designs Inspired by Nature (1)	Identify the major parts of plants, including stem, roots, leaves, and flowers.	Organization and Development of Living Organisms	Science	1	Life Science
SC.1.L.16.1 Designs Inspired by Nature (1)	Make observations that plants and animals closely resemble their parents, but variations exist among individuals within a population.	Heredity and Reproduction	Science	1	Life Science
SC.1.L.17.1 Living Things: Needs and Impacts (K} Animals and Algorithms (K)	Through observation, recognize that all plants and animals, including humans, need the basic necessities of air, water, food, and space.	Interdependence	Science	1	Life Science

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.1.N.1.1 Light and Sound (1) Light: Observing the Sun, Moon and Stars (1) Animal Adaptations (1)	Raise questions about the natural world, investigate them in teams through free exploration, and generate appropriate explanations based on those explorations.	The Practice of Science	Science	1	Nature of Science
SC.1.N.1.2 Supported by all first grade PLTW Launch modules	Using the five senses as tools, make careful observations, describe objects in terms of number, shape, texture, size, weight, color, and motion, and compare their observations with others.	The Practice of Science	Science	1	Nature of Science
SC.1.N.1.3 Supported by all first grade PLTW Launch modules	Keep records as appropriate - such as pictorial and written records - of investigations conducted.	The Practice of Science	Science	1	Nature of Science
SC.1.N.1.4 Supported by all first grade PLTW Launch modules	Ask "how do you know?" in appropriate situations.	The Practice of Science	Science	1	Nature of Science
SC.1.P.8.1 Animal Adaptations (1) Materials Science: Properties of Matter (2)	Sort objects by observable properties, such as size, shape, color, temperature (hot or cold), weight (heavy or light), texture, and whether objects sink or float.	Properties of Matter	Science	1	Physical Science
SC.1.P.12.1 Pushes and Pulls (K)	Demonstrate and describe the various ways that objects can move, such as in a straight line, zigzag, back-and-forth, round-and-round, fast, and slow.	Motion of Objects	Science	1	Physical Science
SC.1.P.13.1 Pushes and Pulls (K)	Demonstrate that the way to change the motion of an object is by applying a push or a pull.	Forces and Changes in Motion	Science	1	Physical Science

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.2.E.7.1 The Changing Earth (2) Environmental Changes (3)	Compare and describe changing patterns in nature that repeat themselves, such as weather conditions including temperature and precipitation, day to day and season to season.	Earth Systems and Patterns	Science	2	Earth and Space Science
SC.2.E.7.2 Light and Sound (1)	Investigate by observing and measuring, that the Sun's energy directly and indirectly warms the water, land, and air.	Earth Systems and Patterns	Science	2	Earth and Space Science
SC.2.E.7.5 Weather: Factors and Hazards (3)	State the importance of preparing for severe weather, lightning, and other weather related events.	Earth Systems and Patterns	Science	2	Earth and Space Science
SC.2.L.16.1 Life Cycles and Survival (3)	Observe and describe major stages in the life cycles of plants and animals, including beans and butterflies.	Heredity and Reproduction	Science	2	Life Science
SC.2.L.17.1 Living Things: Diversity of Life (2) Environmental Changes (3) Life Cycles and Survival (3)	Compare and contrast the basic needs that all living things, including humans, have for survival.	Interdependence	Science	2	Life Science
SC.2.L.17.2 Living Things: Diversity of Life (2) Environmental Changes (3)	Recognize and explain that living things are found all over Earth, but each is only able to live in habitats that meet its basic needs.	Interdependence	Science	2	Life Science
SC.2.N.1.1 Materials Science: Properties of Matter (2) Materials Science: Form and Function (2) The Changing Earth (2) Living Things: Diversity of Life (2)	Raise questions about the natural world, investigate them in teams through free exploration and systematic observations, and generate appropriate explanations based on those explorations.	The Practice of Science	Science	2	Nature of Science

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.2.P.8.1 Materials Science: Properties of Matter (2) Materials Science: Form and Function (2)	Observe and measure objects in terms of their properties, including size, shape, color, temperature, weight, texture, sinking or floating in water, and attraction and repulsion of magnets.	Properties of Matter	Science	2	Physical Science
SC.2.P.8.2 Materials Science: Properties of Matter (2)	Identify objects and materials as solid, liquid, or gas.	Properties of Matter	Science	2	Physical Science
SC.2.P.8.4 Materials Science: Properties of Matter (2)	Observe and describe water in its solid, liquid, and gaseous states.	Properties of Matter	Science	2	Physical Science
SC.2.P.9.1 Materials Science: Properties of Matter (2)	Investigate that materials can be altered to change some of their properties, but not all materials respond the same way to any one alteration.	Changes in Matter	Science	2	Physical Science
SC.2.P.13.2 Stability and Motion: Forces and Interactions (3)	Demonstrate that magnets can be used to make some things move without touching them.	Forces and Changes in Motion	Science	2	Physical Science
SC.2.P.13.3 Stability and Motion: Science of Flight (3)	Recognize that objects are pulled toward the ground unless something holds them up.	Forces and Changes in Motion	Science	2	Physical Science
SC.3.E.5.4 Stability and Motion: Forces and Interactions (3)	Explore the Law of Gravity by demonstrating that gravity is a force that can be overcome.	Earth in Space and Time	Science	3	Earth and Space Science
SC.3.L.14.1 Organisms: Structure and Function (4)	Describe structures in plants and their roles in food production, support, water and nutrient transport, and reproduction.	Organization and Development of Living Organisms	Science	3	Life Science

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.3.L.14.2 Organisms: Structure and Function (4)	Investigate and describe how plants respond to stimuli (heat, light, gravity), such as the way plant stems grow toward light and their roots grow downward in response to gravity.	Organization and Development of Living Organisms	Science	3	Life Science
SC.3.L.17.2 Living Things: Diversity of Life (2)	Recognize that plants use energy from the Sun, air, and water to make their own food.	Interdependence	Science	3	Life Science
SC.3.N.1.1 Supported by all PLTW Launch modules	Raise questions about the natural world, investigate them individually and in teams through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.	The Practice of Science	Science	3	Nature of Science
SC.3.N.1.2 Living Things: Diversity of Life (2)	Compare the observations made by different groups using the same tools and seek reasons to explain the differences across groups.	The Practice of Science	Science	3	Nature of Science
SC.3.N.1.3 Supported by all PLTW Launch modules	Keep records as appropriate, such as pictorial, written, or simple charts and graphs, of investigations conducted.	The Practice of Science	Science	3	Nature of Science

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.3.N.1.4 Living Things: Diversity of Life (2) Stability and Motion: Science of Flight (3) Stability and Motion: Forces and Interactions (3) Variation of Traits (3) Weather: Factors and Hazards (3) Life Cycles and Survival (3) Environmental Changes (3) Waves and the Properties of Light (4) Organisms: Structure and Function (4) Earth: Past, Present and Future (4) Earth: Human Impact and Natural Disasters (4)	Recognize the importance of communication among scientists.	The Practice of Science	Science	3	Nature of Science
SC.3.N.1.5 Living Things: Diversity of Life (2) The Changing Earth (2) Variation of Traits (3) Weather: Factors and Hazards (3) Earth: Past, Present and Future (4) Organisms: Structure and Function: (4) Waves and the Properties of Light (4)	Recognize that (scientists') question, discuss, and check each other's evidence and explanations.	The Practice of Science	Science	3	Nature of Science
SC.3.N.1.6 Supported by all PLTW Launch modules	Infer based on observation.	The Practice of Science	Science	3	Nature of Science

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.3.N.1.7 Living Things: Diversity of Life (2) Stability and Motion: Science of Flight (3) Stability and Motion: Forces and Interactions (3) Variation of Traits (3) Weather: Factors and Hazards (3) Life Cycles and Survival (3) Environmental Changes (3) Waves and the Properties of Light (4) Organisms: Structure and Function (4) Earth: Past, Present and Future (4) Earth: Human Impact and Natural Disasters (4)	Explain that empirical evidence is information, such as observations or measurements, that is used to help validate explanations of natural phenomena.	The Practice of Science	Science	3	Nature of Science
SC.3.P.8.3 Materials Science: Properties of Matter (2) Materials Science: Form and Function (2)	Compare materials and objects according to properties such as size, shape, color, texture, and hardness.	Properties of Matter	Science	3	Physical Science
SC.3.P.10.1 Energy Exploration (4)	Identify some basic forms of energy such as light, heat, sound, electrical, and mechanical.	Forms of Energy	Science	3	Physical Science
SC.3.P.10.2 Energy Exploration (4)	Recognize that energy has the ability to cause motion or create change.	Forms of Energy	Science	3	Physical Science
SC.3.P.10.3 Waves and the Properties of Light (4)	Demonstrate that light travels in a straight line until it strikes an object or travels from one medium to another.	Forms of Energy	Science	3	Physical Science
SC.3.P.10.4 Waves and the Properties of Light (4)	Demonstrate that light can be reflected, refracted, and absorbed.	Forms of Energy	Science	3	Physical Science

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.3.P.11.1 Energy Exploration (4)	Investigate, observe, and explain that things that give off light often also give off heat.	Energy Transfer and Transformations	Science	3	Physical Science
SC.3.P.11.2 Energy Exploration (4)	Investigate, observe, and explain that heat is produced when one object rubs against another, such as rubbing one's hands together.	Energy Transfer and Transformations	Science	3	Physical Science
SC.4.E.5.1 Patterns in the Universe (5)	Observe that the patterns of stars in the sky stay the same although they appear to shift across the sky nightly, and different stars can be seen in different seasons.	Earth in Space and Time	Science	4	Earth and Space Science
SC.4.E.5.2 Patterns in the Universe (5)	Describe the changes in the observable shape of the moon over the course of about a month.	Earth in Space and Time	Science	4	Earth and Space Science
SC.4.E.5.3 Patterns in the Universe (5)	Recognize that Earth revolves around the Sun in a year and rotates on its axis in a 24-hour day.	Earth in Space and Time	Science	4	Earth and Space Science
SC.4.E.5.4 Patterns in the Universe (5)	Relate that the rotation of Earth (day and night) and apparent movements of the Sun, Moon, and stars are connected.	Earth in Space and Time	Science	4	Earth and Space Science
SC.4.E.6.3 Energy Exploration (4)	Recognize that humans need resources found on Earth and that these are either renewable or nonrenewable.	Earth Structures	Science	4	Earth and Space Science

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.4.E.6.4 Earth: Past, Present and Future (4)	Describe the basic differences between physical weathering (breaking down of rock by wind, water, ice, temperature change, and plants) and erosion (movement of rock by gravity, wind, water, and ice).	Earth Structures	Science	4	Earth and Space Science
SC.4.L.16.2 Variation of Traits (3)	Explain that although characteristics of plants and animals are inherited, some characteristics can be affected by the environment.	Heredity and Reproduction	Science	4	Life Science
SC.4.L.16.3 Variation of Traits (3)	Recognize that animal behaviors may be shaped by heredity and learning.	Heredity and Reproduction	Science	4	Life Science
SC.4.L.17.2 Ecosystems: Flow of Matter and Energy (5)	Explain that animals, including humans, cannot make their own food and that when animals eat plants or other animals, the energy stored in the food source is passed to them.	Interdependence	Science	4	Life Science
SC.4.L.17.3 Ecosystems: Flow of Matter and Energy (5)	Trace the flow of energy from the Sun as it is transferred along the food chain through the producers to the consumers.	Interdependence	Science	4	Life Science
SC.4.L.17.4 Environmental Changes (3) Earth: Human Impact and Natural Disasters (4)	Recognize ways plants and animals, including humans, can impact the environment.	Interdependence	Science	4	Life Science

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.4.N.1.1 Supported by all PLTW Launch modules	Raise questions about the natural world, use appropriate reference materials that support understanding to obtain information (identifying the source), conduct both individual and team investigations through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.	The Practice of Science	Science	4	Nature of Science
SC.4.N.1.4 Supported by all PLTW Launch modules	Attempt reasonable answers to scientific questions and cite evidence in support.	The Practice of Science	Science	4	Nature of Science
SC.4.N.1.5 Infection: Detection (5)	Compare the methods and results of investigations done by other classmates.	The Practice of Science	Science	4	Nature of Science
SC.4.N.1.6 Supported by all PLTW Launch modules	Keep records that describe observations made, carefully distinguishing actual observations from ideas and inferences about the observations.	The Practice of Science	Science	4	Nature of Science
SC.4.N.1.7 Variation of Traits (3) Weather: Factors and Hazards (3) Waves and the Properties of Light (4) Organisms: Structure and Function (4) Earth: Past, Present and Future (4) Infection: Detection (5) Matter: Properties and Reactions (5) Ecosystems: Flow of Matter and Energy (5) Patterns in the Universe (5) Earth's Water and Interconnected Systems (5)	Recognize and explain that scientists base their explanations on evidence.	The Practice of Science	Science	4	Nature of Science

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.4.P.8.1 Matter: Properties and Reactions (5)	Measure and compare objects and materials based on their physical properties including: mass, shape, volume, color, hardness, texture, odor, taste, attraction to magnets.	Properties of Matter	Science	4	Physical Science
SC.4.P.8.2 Matter: Properties and Reactions (5)	Identify properties and common uses of water in each of its states.	Properties of Matter	Science	4	Physical Science
SC.4.P.8.3 Matter: Properties and Reactions (5)	Explore the Law of Conservation of Mass by demonstrating that the mass of a whole object is always the same as the sum of the masses of its parts.	Properties of Matter	Science	4	Physical Science
SC.4.P.8.4 Stability and Motion: Forces and Interactions (3)	Investigate and describe that magnets can attract magnetic materials and attract and repel other magnets.	Properties of Matter	Science	4	Physical Science
SC.4.P.9.1 Matter: Properties and Reactions (5)	Identify some familiar changes in materials that result in other materials with different characteristics, such as decaying animal or plant matter, burning, rusting, and cooking.	Changes in Matter	Science	4	Physical Science
SC.4.P.10.1 Energy Exploration (4)	Observe and describe some basic forms of energy, including light, heat, sound, electrical, and the energy of motion.	Forms of Energy	Science	4	Physical Science
SC.4.P.10.2 Energy Exploration (4)	Investigate and describe that energy has the ability to cause motion or create change.	Forms of Energy	Science	4	Physical Science

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.4.P.10.4 Earth's Water and Interconnected Systems (5)	Describe how moving water and air are sources of energy and can be used to move things.	Forms of Energy	Science	4	Physical Science
SC.4.P.12.1 Stability and Motion: Science of Flight (3)	Recognize that an object in motion always changes its position and may change its direction.	Motion of Objects	Science	4	Physical Science
SC.5.E.5.3 Patterns in the Universe (5)	Distinguish among the following objects of the Solar System -- Sun, planets, moons, asteroids, comets -- and identify Earth's position in it.	Earth in Space and Time	Science	5	Earth and Space Science
SC.5.E.7.1 Earth's Water and Interconnected Systems (5)	Create a model to explain the parts of the water cycle. Water can be a gas, a liquid, or a solid and can go back and forth from one state to another.	Earth Systems and Patterns	Science	5	Earth and Space Science
SC.5.E.7.2 Weather: Factors and Hazards (3)	Recognize that the ocean is an integral part of the water cycle and is connected to all of Earth's water reservoirs via evaporation and precipitation processes.	Earth Systems and Patterns	Science	5	Earth and Space Science
SC.5.E.7.3 Weather: Factors and Hazards (3)	Recognize how air temperature, barometric pressure, humidity, wind speed and direction, and precipitation determine the weather in a particular place and time.	Earth Systems and Patterns	Science	5	Earth and Space Science
SC.5.E.7.4 Weather: Factors and Hazards (3)	Distinguish among the various forms of precipitation (rain, snow, sleet, and hail), making connections to the weather in a particular place and time.	Earth Systems and Patterns	Science	5	Earth and Space Science

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.5.E.7.5 Weather: Factors and Hazards (3)	Recognize that some of the weather-related differences, such as temperature and humidity, are found among different environments, such as swamps, deserts, and mountains.	Earth Systems and Patterns	Science	5	Earth and Space Science
SC.5.E.7.6 Weather: Factors and Hazards (3)	Describe characteristics (temperature and precipitation) of different climate zones as they relate to latitude, elevation, and proximity to bodies of water.	Earth Systems and Patterns	Science	5	Earth and Space Science
SC.5.E.7.7 Earth: Human Impact and Natural Disasters (4)	Design a family preparedness plan for natural disasters and identify the reasons for having such a plan.	Earth Systems and Patterns	Science	5	Earth and Space Science
SC.5.L.14.2 Organisms: Structure and Function (4)	Compare and contrast the function of organs and other physical structures of plants and animals, including humans, for example: some animals have skeletons for support -- some with internal skeletons others with exoskeletons -- while some plants have stems for support.	Organization and Development of Living Organisms	Science	5	Life Science

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.5.N.1.1 Supported by all PLTW Launch modules	Define a problem, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types such as: systematic observations, experiments requiring the identification of variables, collecting and organizing data, interpreting data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.	The Practice of Science	Science	5	Nature of Science
SC.5.N.1.3 Infection: Detection (5)	Recognize and explain the need for repeated experimental trials.	The Practice of Science	Science	5	Nature of Science
SC.5.N.1.4 Infection: Detection (5)	Identify a control group and explain its importance in an experiment.	The Practice of Science	Science	5	Nature of Science
SC.5.N.1.6 PLTW Launch modules support this through the discussion and use of citing evidence as a way to support claims	Recognize and explain the difference between personal opinion/interpretation and verified observation.	The Practice of Science	Science	5	Nature of Science
SC.5.N.2.1 Infection: Detection (5)	Recognize and explain that science is grounded in empirical observations that are testable; explanation must always be linked with evidence.	The Characteristics of Scientific Knowledge	Science	5	Nature of Science
SC.5.P.8.1 Matter: Properties and Reactions (5)	Compare and contrast the basic properties of solids, liquids, and gases, such as mass, volume, color, texture, and temperature.	Properties of Matter	Science	5	Physical Science

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.5.P.8.2 Matter: Properties and Reactions (5)	Investigate and identify materials that will dissolve in water and those that will not and identify the conditions that will speed up or slow down the dissolving process.	Properties of Matter	Science	5	Physical Science
SC.5.P.8.3 Matter: Properties and Reactions (5)	Demonstrate and explain that mixtures of solids can be separated based on observable properties of their parts such as particle size, shape, color, and magnetic attraction.	Properties of Matter	Science	5	Physical Science
SC.5.P.8.4 Matter: Properties and Reactions (5)	Explore the scientific theory of atoms (also called atomic theory) by recognizing that all matter is composed of parts that are too small to be seen without magnification.	Properties of Matter	Science	5	Physical Science
SC.5.P.10.1 Energy Exploration (4)	Investigate and describe some basic forms of energy, including light, heat, sound, electrical, chemical, and mechanical.	Forms of Energy	Science	5	Physical Science
SC.5.P.10.2 Energy Exploration (4)	Investigate and explain that energy has the ability to cause motion or create change.	Forms of Energy	Science	5	Physical Science
SC.5.P.10.4 Energy Exploration (4)	Investigate and explain that electrical energy can be transformed into heat, light, and sound energy, as well as the energy of motion.	Forms of Energy	Science	5	Physical Science
SC.5.P.13.1 Earth's Water and Interconnected Systems (5)	Identify familiar forces that cause objects to move, such as pushes or pulls, including gravity acting on falling objects.	Forces and Changes in Motion	Science	5	Physical Science

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.5.P.13.3 Energy Exploration (4)	Investigate and describe that the more mass an object has, the less effect a given force will have on the object's motion.	Forces and Changes in Motion	Science	5	Physical Science
SC.5.P.13.4 Energy Exploration (4)	Investigate and explain that when a force is applied to an (object,) but it does not move, it is because another opposing force is being applied by something in the environment so that the forces are balanced.	Forces and Changes in Motion	Science	5	Physical Science
SC.K2.CS-CC.1.3 Supported by all kindergarten, first and second grade PLTW Launch modules	Collaborate and cooperate with peers, teachers, and others using technology to solve problems.	Communication and collaboration	Science	K2	Computer Science - Communication and Collaboration
SC.K2.CS-CC.1.4 Supported by all kindergarten, first and second grade PLTW Launch modules	Provide and accept constructive criticism on a collaborative project.	Communication and collaboration	Science	K2	Computer Science - Communication and Collaboration
SC.K2.CS-CP.1.2 Living Things: Needs and Impacts (K) Animal Adaptations (1) Materials Science: Properties of Matter (2) Materials Science: Form and Function (2) The Changing Earth (2) Living Things: Diversity of Life (2)	Collect and manipulate data using a variety of computing methods (e.g., sorting, totaling, and averaging).	Data analysis	Science	K2	Computer Science - Computer Practices and Programming
SC.K2.CS-CP.1.3 Supported by all kindergarten, first and second grade PLTW Launch modules	Propose a solution to a problem or question based on an analysis of the data and critical thinking, individually and collaboratively.	Data analysis	Science	K2	Computer Science - Computer Practices and Programming

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.K2.CS-CP.1.4 Pushes and Pulls (K) Structure and Function: Human Body (K) Sunlight and Weather (K) Living Things: Needs and Impacts (K) Light and Sound (1) Light: Observing the Sun, Moon and Stars (1) Animal Adaptations (1) Materials Science: Properties of Matter (2) Materials Science: Form and Function (2) The Changing Earth (2) Living Things: Diversity of Life (2)	Create data visualizations (e.g., charts and infographics), individually and collaboratively.	Data analysis	Science	K2	Computer Science - Computer Practices and Programming
SC.K2.CS-CP.2.1 Animated Storytelling (1) Grids and Games (2)	Define a computer program as a set of commands created by people to do something.	Computer programming basics	Science	K2	Computer Science - Computer Practices and Programming
SC.K2.CS-CP.2.2 Supported by all kindergarten, first and second grade PLTW Launch modules	Perform a simple task (e.g., making a sandwich and brushing teeth) breaking it into small steps.	Computer programming basics	Science	K2	Computer Science - Computer Practices and Programming
SC.K2.CS-CP.2.3 Animals and Algorithms (K) Animated Storytelling (1) Grids and Games (2)	Explain that computers only follow the program's instructions.	Computer programming basics	Science	K2	Computer Science - Computer Practices and Programming
SC.K2.CS-CP.2.4 Animals and Algorithms (K) Animated Storytelling (1) Grids and Games (2)	Construct a simple program using tools that do not require a textual programming language (e.g. block-based programming language).	Computer programming basics	Science	K2	Computer Science - Computer Practices and Programming

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.K2.CS-CP.3.1 Pushes and Pulls (K) Structure and Function: Human Body (K) Sunlight and Weather (K) Living Things: Needs and Impacts (K) Light: Observing the Sun, Moon and Stars (1) Animal Adaptations (1) Animated Storytelling (1)	Create developmentally appropriate multimedia products with support from teachers, family members, or student partners.	Programming applications	Science	K2	Computer Science - Computer Practices and Programming
SC.K2.CS-CP.3.2 Pushes and Pulls (K) Structure and Function: Human Body (K) Sunlight and Weather (K) Living Things: Needs and Impacts (K) Light: Observing the Sun, Moon and Stars (1) Materials Science: Form and Function (2) The Changing Earth (2) Grids and Games (2) Living Things: Diversity of Life (2)	Prepare a simple presentation of digital products and applications.	Programming applications	Science	K2	Computer Science - Computer Practices and Programming
SC.K2.CS-CS.1.4 Supported by all kindergarten, first and second grade PLTW Launch modules	Solve questions individually and collaboratively using models.	Modeling and simulations	Science	K2	Computer Science - Communication Systems and Computing
SC.K2.CS-CS.2.1 Pushes and Pulls (K) Materials Science: Properties of Matter (2)	Arrange or sort information into useful order, such as sorting students by birth date, with or without technology.	Problem solving and algorithms	Science	K2	Computer Science - Communication Systems and Computing
SC.K2.CS-CS.2.2 Supported by all kindergarten, first and second grade PLTW Launch modules	Solve age-appropriate problems (e.g., puzzles and logical thinking programs) with or without technology (i.e., computational thinking).	Problem solving and algorithms	Science	K2	Computer Science - Communication Systems and Computing
SC.K2.CS-CS.2.3 Supported by all kindergarten, first and second grade PLTW Launch modules	Solve real life issues in science and engineering using computational thinking.	Problem solving and algorithms	Science	K2	Computer Science - Communication Systems and Computing

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SC.K2.CS-CS.2.4 Grids and Games (2)	Define an algorithm as a sequence of defined steps.	Problem solving and algorithms	Science	K2	Computer Science - Communication Systems and Computing
SC.K2.CS-CS.2.5 Animals and Algorithms (K) Animated Storytelling (1) Grids and Games (2)	Create a simple algorithm, individually and collaboratively, without using computers to complete the task (e.g., making a sandwich, getting ready for school).	Problem solving and algorithms	Science	K2	Computer Science - Communication Systems and Computing
SC.K2.CS-CS.2.6 Supported by all kindergarten, first and second grade PLTW Launch modules	Illustrate thoughts, ideas, and stories in a step-by-step manner using writing tools, digital cameras, and drawing tools.	Problem solving and algorithms	Science	K2	Computer Science - Communication Systems and Computing
SC.K2.CS-CS.2.7 Animated Storytelling (1) Grids and Games (2)	Develop and present an algorithm using tangible materials.	Problem solving and algorithms	Science	K2	Computer Science - Communication Systems and Computing
SC.K2.CS-CS.2.8 Pushes and Pulls (K) Sunlight and Weather (K) Light: Observing the Sun, Moon and Stars (1) Materials Science: Form and Function (2) Living Things: Diversity of Life (2)	Gather and organize information using concept-mapping tools.	Problem solving and algorithms	Science	K2	Computer Science - Communication Systems and Computing
SC.K2.CS-CS.3.1 Pushes and Pulls (K) Structure and Function: Human Body (K) Sunlight and Weather (K) Living Things: Needs and Impacts (K) Light and Sound (1) Light: Observing the Sun, Moon and Stars (1) Materials Science: Form and Function (2) The Changing Earth (2) Living Things: Diversity of Life (2)	Create a digital artifact (independently and collaboratively) that clearly expresses thoughts and ideas.	Digital tools	Science	K2	Computer Science - Communication Systems and Computing

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.K2.CS-CS.3.2 Pushes and Pulls (K) Structure and Function: Human Body (K) Sunlight and Weather (K) Living Things: Needs and Impacts (K) Light: Observing the Sun, Moon and Stars (1) Materials Science: Form and Function (2) The Changing Earth (2) Living Things: Diversity of Life (2)	Create, review, and revise artifacts that include text, images, and audio using digital tools.	Digital tools	Science	K2	Computer Science - Communication Systems and Computing
SC.K2.CS-CS.4.2 Grids and Games (2)	Recognize and operate different types of computers, applications and peripherals (e.g., use input/output devices such as a mouse, keyboard, or touch screen; find, navigate, launch a program).	Hardware and software	Science	K2	Computer Science - Communication Systems and Computing
SC.K2.CS-PC.1.1 Supported by all kindergarten, first and second grade PLTW Launch modules	Demonstrate proper care for electronic devices (e.g., handling devices carefully, logging off or shutting down correctly, and keeping devices away from water/ food).	Responsible use of technology and information	Science	K2	Computer Science - Personal, Community, Global, and Ethical Impact
SC.K2.CS-PC.2.2 Animals and Algorithms (K) Animated Storytelling (1) Grids and Games (2)	Communicate about technology using developmentally appropriate terminology.	The impact of computing resources on local and global society	Science	K2	Computer Science - Personal, Community, Global, and Ethical Impact
SC.K2.CS-PC.2.3 Grids and Games (2)	Recognize that people use computing technology in the workplace to perform many important tasks and functions.	The impact of computing resources on local and global society	Science	K2	Computer Science - Personal, Community, Global, and Ethical Impact

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.35.CS-CC.1.2 Supported by all PLTW Launch modules	Describe key ideas and details while working individually or collaboratively using digital tools and media-rich resources in a way that informs, persuades, and/or entertains.	Communication and collaboration	Science	35	Computer Science - Communication and Collaboration
SC.35.CS-CP.1.3 Stability and Motion: Science of Flight (3) Variation of Traits (3) Weather: Factors and Hazards (3) Energy Exploration (4) Input/Output: Human Brain (4) Waves and the Properties of Light (4) Organisms: Structure and Function (4) Earth: Past, Present and Future (4) Earth: Human Impact and Natural Disasters (4) Robotics and Automation (5) Robotics and Automation: Challenge (5) Infection: Detection (5) Infection: Modeling and Simulation (5) Matter: Properties and Reactions (5) Ecosystems: Flow of Matter and Energy (5) Patterns in the Universe (5) Earth's Water and Interconnected Systems (5)	Identify, research, and collect a data set on a topic, issue, problem, or question using age-appropriate technologies.	Data analysis	Science	35	Computer Science - Computer Practices and Programming

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.35.CS-CP.1.4 Stability and Motion: Science of Flight (3) Variation of Traits (3) Weather: Factors and Hazards (3) Energy Exploration (4) Input/Output: Human Brain (4) Waves and the Properties of Light (4) Organisms: Structure and Function (4) Earth: Past, Present and Future (4) Earth: Human Impact and Natural Disasters (4) Robotics and Automation (5) Robotics and Automation: Challenge (5) Infection: Detection (5) Infection: Modeling and Simulation (5) Matter: Properties and Reactions (5 Ecosystems: Flow of Matter and Energy (5) Patterns in the Universe (5) Earth's Water and Interconnected Systems (5)	Collect, organize, graph, and analyze data to answer a question using a database or spreadsheet.	Data analysis	Science	35	Computer Science - Computer Practices and Programming
SC.35.CS-CP.2.1 Supported by all PLTW Launch modules	Perform keyboarding skills for communication and the input of data and information.	Computer programming basics	Science	35	Computer Science - Computer Practices and Programming
SC.35.CS-CP.2.2 Grids and Games (2) Programming Patterns (3) Input/Output: Computer Systems (4) Infection: Modeling and Simulation (5)	Create, test, and modify a program in a graphical environment (e.g., block-based visual programming language), individually and collaboratively.	Computer programming basics	Science	35	Computer Science - Computer Practices and Programming
SC.35.CS-CP.2.3 Grids and Games (2) Programming Patterns (3) Input/Output: Computer Systems (4) Infection: Modeling and Simulation (5)	Create a program using arithmetic operators, conditionals, and repetition in programs.	Computer programming basics	Science	35	Computer Science - Computer Practices and Programming

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SC.35.CS-CP.2.4 Input/Output: Computer Systems (4) Infection: Modeling and Simulation (5)	Explain that programs need known initial conditions (e.g., set initial score to zero in a game, initialize variables, or initial values set by hardware input).	Computer programming basics	Science	35	Computer Science - Computer Practices and Programming
SC.35.CS-CP.2.5 Programming Patterns (3) Input/Output: Computer Systems (4) Infection: Modeling and Simulation (5)	Detect and correct program errors, including those involving arithmetic operators, conditionals, and repetition, using interactive debugging.	Computer programming basics	Science	35	Computer Science - Computer Practices and Programming
SC.35.CS-CP.3.1 Stability and Motion: Forces and Interactions (3) Variation of Traits (3) Programming Patterns (3) Weather: Factors and Hazards (3) Life Cycles and Survival (3) Environmental Changes (3) Energy Exploration (4) Input/Output: Computer Systems (4) Input/Output: Human Brain (4) Waves and the Properties of Light (4) Organisms: Structure and Function (4) Earth: Past, Present and Future (4) Earth: Human Impact and Natural Disasters (4) Robotics and Automation (5) Robotics and Automation: Challenge (5) Infection: Modeling and Simulation (5) Ecosystems: Flow of Matter and Energy (5) Patterns in the Universe (5) Earth's Water and Interconnected Systems (5)	Write, communicate and publish activities using technology tools.	Programming applications	Science	35	Computer Science - Computer Practices and Programming

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.35.CS-CP.3.2 Stability and Motion: Forces and Interactions (3) Variation of Traits (3) Programming Patterns (3) Weather: Factors and Hazards (3) Life Cycles and Survival (3) Environmental Changes (3) Energy Exploration (4) Input/Output: Computer Systems (4) Input/Output: Human Brain (4) Waves and the Properties of Light (4) Organisms: Structure and Function (4) Earth: Past, Present and Future (4) Earth: Human Impact and Natural Disasters (4) Robotics and Automation (5) Robotics and Automation: Challenge (5) Infection: Modeling and Simulation (5) Ecosystems: Flow of Matter and Energy (5) Patterns in the Universe (5) Earth's Water and Interconnected Systems (5)	Present digitally created products, either individually and collaboratively, where a topic, concept, or skill is carefully analyzed or thoughtfully explored.	Programming applications	Science	35	Computer Science - Computer Practices and Programming

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.35.CS-CS.1.1 Variation of Traits (3) Weather: Factors and Hazards (3) Life Cycles and Survival (3) Environmental Changes (3) Energy Exploration (4) Waves and the Properties of Light (4) Input/Output: Computer Science (4) Infection: Detection (5) Infection: Modeling and Simulation (5) Matter: Properties and Reactions (5) Ecosystems: Flow of Matter and Energy (5) Patterns in the Universe (5)	Identify the concepts illustrated by a simulation (e.g., ecosystem, predator/ prey, and invasive species).	Modeling and simulations	Science	35	Computer Science - Communication Systems and Computing
SC.35.CS-CS.1.2 Ecosystems: Flow of Matter and Energy (5)	Describe how models and simulations can be used to solve real-world issues in science and engineering.	Modeling and simulations	Science	35	Computer Science - Communication Systems and Computing
SC.35.CS-CS.1.3 Variation of Traits (3) Weather: Factors and Hazards (3) Life Cycles and Survival (3) Environmental Changes (3) Energy Exploration (4) Waves and the Properties of Light (4) Input/Output: Computer Science (4) Infection: Detection (5) Infection: Modeling and Simulation (5) Matter: Properties and Reactions (5) Ecosystems: Flow of Matter and Energy (5) Patterns in the Universe (5)	Answer a question, individually and collaboratively, using data from a simulation.	Modeling and simulations	Science	35	Computer Science - Communication Systems and Computing

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.35.CS-CS.1.4 Stability and Motion: Science of Flight (3) Stability and Motion: Forces and Interactions (3) Energy Exploration (4) Input/Output: Human Brain (4) Organisms: Structure and Function (4) Matter: Properties and Reactions (5) Ecosystems: Flow of Matter and Energy (5) Patterns in the Universe (5) Earth's Water and Interconnected Systems (5)	Create a simple model of a system (e.g., flower or solar system) and explain what the model shows and does not show.	Modeling and simulations	Science	35	Computer Science - Communication Systems and Computing
SC.35.CS-CS.2.1 Energy Exploration (4) Earth: Human Impact and Natural Disasters (4) Organisms: Structure and Function (4)	Solve age-appropriate problems using information organized using digital graphic organizers (e.g., concept maps and Venn-diagrams).	Problem solving and algorithms	Science	35	Computer Science - Communication Systems and Computing
SC.35.CS-CS.2.4 Supported by all PLTW Launch modules	Solve real-world problems in science and engineering using computational thinking skills.	Problem solving and algorithms	Science	35	Computer Science - Communication Systems and Computing
SC.35.CS-CS.2.6 Programming Patterns (3) Input/Output: Computer Systems (4) Infection: Modeling and Simulation (5)	Write an algorithm to solve a grade-level appropriate problem (e.g., move a character through a maze, instruct a character to draw a specific shape, have a character start, repeat or end activity as required or upon a specific event), individually or collaboratively.	Problem solving and algorithms	Science	35	Computer Science - Communication Systems and Computing
SC.35.CS-CS.2.7 Programming Patterns (3) Input/Output: Computer Systems (4) Infection: Modeling and Simulation (5)	Identify and correct logical errors in algorithms; written, mapped, live action, or digital.	Problem solving and algorithms	Science	35	Computer Science - Communication Systems and Computing

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.35.CS-CS.2.8 Programming Patterns (3) Input/Output: Computer Systems (4) Infection: Modeling and Simulation (5)	Systematically test and identify logical errors in algorithms.	Problem solving and algorithms	Science	35	Computer Science - Communication Systems and Computing
SC.35.CS-CS.2.9 Programming Patterns (3) Input/Output: Computer Systems (4) Infection: Modeling and Simulation (5)	Explain how to correct logical errors in algorithms; written, mapped, live action, or digital.	Problem solving and algorithms	Science	35	Computer Science - Communication Systems and Computing
SC.35.CS-CS.3.1 Stability and Motion: Forces and Interactions (3) Variation of Traits (3) Programming Patterns (3) Life Cycles and Survival (3) Environmental Changes (3) Energy Exploration (4) Input/Output: Computer Systems (4) Input/Output: Human Brain (4) Waves and the Properties of Light (4) Organisms: Structure and Function (4) Earth: Past, Present and Future (4) Earth: Human Impact and Natural Disasters (4) Robotics and Automation (5) Robotics and Automation: Challenge (5) Ecosystems: Flow of Matter and Energy (5) Patterns in the Universe (5) Earth's Water and Interconnected Systems (5)	Manipulate and publish multimedia artifacts using digital tools (local and online).	Digital tools	Science	35	Computer Science - Communication Systems and Computing

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.35.CS-CS.3.2 Stability and Motion: Forces and Interactions (3) Variation of Traits (3) Programming Patterns (3) Life Cycles and Survival (3) Environmental Changes (3) Energy Exploration (4) Input/Output: Computer Systems (4) Input/Output: Human Brain (4) Waves and the Properties of Light (4) Organisms: Structure and Function (4) Earth: Past, Present and Future (4) Earth: Human Impact and Natural Disasters (4) Robotics and Automation (5) Robotics and Automation: Challenge (5) Ecosystems: Flow of Matter and Energy (5) Patterns in the Universe (5) Earth's Water and Interconnected Systems (5)	Create an artifact (independently and collaboratively) that answers a research question clearly communicating thoughts and ideas.	Digital tools	Science	35	Computer Science - Communication Systems and Computing
SC.35.CS-CS.6.1 Infection: Modeling and Simulation (5)	Describe how hardware applications (e.g., Global Positioning System (GPS) navigation for driving directions, text-to-speech translation, and language translation) can enable everyone to do things they could not do otherwise.	Human – Computer interactions and Artificial Intelligence	Science	35	Computer Science - Communication Systems and Computing
SC.35.CS-CS.6.3 Robotics and Automation (5) Robotics and Automation: Challenge (5)	Explain that computers model intelligent behavior (as found in robotics, speech and language recognition, and computer animation).	Human – Computer interactions and Artificial Intelligence	Science	35	Computer Science - Communication Systems and Computing
SC.35.CS-PC.1.1 Input/Output: Computer Systems (4)	Identify appropriate and inappropriate uses of technology when posting to social media, sending e-mail, and browsing the Internet.	Responsible use of technology and information	Science	35	Computer Science - Personal, Community, Global, and Ethical Impact

Benchmark# [Module Name (rec. grade level)]	Description	Idea/Standard	Subject	Grade	Body Of Knowledge/ Strand
SC.35.CS-PC.2.6 Programming Patterns (3) Input/Output: Computer Systems (4) Infection: Modeling and Simulation (5)	Communicate about technology using appropriate terminology.	The impact of computing resources on local and global society	Science	35	Computer Science - Personal, Community, Global, and Ethical Impact
SC.35.CS-PC.3.1 A variety of Launch modules support this through opportunities to utilize digital resources within modules.	Identify digital information resources used to answer research questions (e.g., online library catalog, online encyclopedias, databases, and websites).	Evaluation of digital information resources	Science	35	Computer Science - Personal, Community, Global, and Ethical Impact
SC.35.CS-PC.3.2 Supported by all PLTW Launch modules	Gather, organize, and analyze information from digital resources.	Evaluation of digital information resources	Science	35	Computer Science - Personal, Community, Global, and Ethical Impact