



# PLTW Launch Modules Overview K-5

## Florida

This curriculum guide provides standards connections for the following bodies of standards:

1. Florida State Academic Standards for Science
2. B.E.S.T Standards-English Language Arts
3. B.E.S.T Standards- Mathematics
4. Florida State Academic Standards for Computer Science




Each PLTW Launch Module integrates ELA and Math into learning while focusing on engineering, computer science, or one of the three areas of science:





- Physical Science
- Life Science
- Earth and Space Science






PLTW Launch Modules have been thoughtfully connected to Florida Standards for Florida educators. Each grade level has been connected to the PLTW Launch Modules that are the “best-fit” for the Florida State Academic Standards for Science. When grade level suggestions vary from the intended grade level it is shown like this: *Light and Sound (1)* to indicate that the module was originally developed for use in 1st Grade.





Florida educators also have the flexibility to utilize the PLTW Launch Modules in the grade level that works best for their students.







	<div>Life Science</div> 	<div>Physical Science</div> 	<div>Earth and Space Science</div> 
K	Life Science: Living and Nonliving Things (PK) K.L.14.1, K.L.14.3	Light and Sound (1) K.P.10.1	
1	<div>Animal Adaptations 1.L.14.1, 1.P.8.1</div> <div>Designs Inspired by Nature 1.L.14.2, 1.L.16.1</div> <div>Living Things: Needs and Impacts (K) 1.L.17.1</div>	Pushes and Pulls (K) 1.P.12.1, 1.P.13.1	<div>Light: Observing the Sun, Moon, and Stars 1.E.5.1, 1.E.5.4</div> <div>The Changing Earth (2) 1.E.6.3</div>
2	<div>Life Cycles and Survival (3) 2.L.16.1, 2.L.17.1</div> <div>Living Things: Diversity of Life 2.L.17.1, 2.L.17.2</div>	<div>Stability and Motion: Forces and Interactions (3) 2.P.13.2</div> <div>Materials Science: Properties of Matter 2.P.8.1, 2.P.8.2, 2.P.8.4</div>	
3		<div>Waves and the Properties of Light (4) 3.P.10.2, 3.P.10.3, 3.P.10.4</div> <div>Materials Science: Form and Function (2) 3.P.8.3</div>	
4	<div>Variation of Traits (3) 4.L.16.2, 4.L.16.3</div> <div>Ecosystems: Flow of Matter and Energy (5) 4.L.17.2, 4.L.17.3, 4.L.17.4</div> <div>Environmental Changes (3) 4.L.17.4</div>		<div>Patterns in the Universe (5) 4.E.5.1, 4.E.5.2, 4.E.5.3, 4.E.5.4</div> <div>Earth: Past, Present, and Future 4.E.6.4</div>
5	Organisms: Structure and Function (4) 5.L.17.1	<div>Energy Exploration (4) 5.P.10.1, 5.P.10.2, 5.P.10.4, 5.P.13.3, 5.P.13.4</div> <div>Matter: Properties and Reactions 5.P.8.1, 5.P.8.2, 5.P.8.3, 5.P.8.4</div>	<div>Earth's Water and Interconnected Systems 5.P.13.1, 5.E.7.1, 5.E.7.2</div> <div>Earth: Human Impact and Natural Disasters (4) 5.E.7.7</div>

		Essential Questions	FL Academic Standards for Science	Nature of Science Standards	B.E.S.T Standards ELA	B.E.S.T Standards Math	FL Academic Standards for Computer Science
	<b>Life Science: Living and Nonliving Things (PK)</b>	How can living things survive when their environment changes? How can a step-by-step process help you design or improve a solution to a problem? How does your model relate to the real world?	SC.K.L.14.1 SC.K.L.14.3	SC.K.N.1.1 SC.K.N.1.2 SC.K.N.1.3 SC.K.N.1.4 SC.K.N.1.5			SC.K.CC.1.1 SC.K.HS.1.3 SC.K.HS.1.4 SC.K.PE.3.2
	<b>Light and Sound (1)</b>	How do light and sound affect your life? Why is understanding cause and effect important to your life? How can collaboration help you solve problems?	SC.K.P.10.1	SC.K.N.1.1 SC.K.N.1.3 SC.K.N.1.4 SC.K.N.1.5			SC.K.CC.1.1 SC.K.HS.1.3 SC.K.HS.1.4 SC.K.CO.1.4 SC.K.PE.3.2
	<b>Sunlight and Weather</b>	How does the Sun affect Earth? How does weather affect our lives? How can a step-by-step process help you design or improve a solution to a problem?		SC.K.N.1.1 SC.K.N.1.3 SC.K.N.1.4 SC.K.N.1.5	ELA.K.R.1.1 ELA.K.R.2.2	MA.K.NSO.1.1 MA.K.M.1.2	SC.K.CC.1.1 SC.K.HS.1.3 SC.K.HS.1.4 SC.K.PE.2.1, 2 SC.K.PE.3.2, 3
	<b>Structure and Function: Exploring Design</b>	How can a step-by-step process help you design or improve a solution to a problem? How do materials impact the structure and function of an object? How does the structure of an object impact its function?		SC.K.N.1.1 SC.K.N.1.3 SC.K.N.1.4 SC.K.N.1.5	ELA.K.R.1.1 ELA.K.R.3.2	MA.K.NSO.1.1 MA.K.NSO.1.2 MA.K.M.1.2	SC.K.CC.1.1 SC.K.HS.1.3 SC.K.HS.1.4 SC.K.PE.3.2
	<b>Structure and Function: Human Body</b>	How are structure and function related? How would we function if our bodies were structured differently? How can a step-by-step process help you design or improve a solution to a problem?		SC.K.N.1.1 SC.K.N.1.3 SC.K.N.1.4 SC.K.N.1.5	ELA.K.R.1.1 ELA.K.R.3.2	MA.K.NSO.1.1 MA.K.NSO.1.2 MA.K.NSO.1.4	SC.K.CC.1.1 SC.K.HS.1.3 SC.K.HS.1.4 SC.K.PE.3.2
	<b>Animals and Algorithms</b>	How do you use algorithms in your daily life? How can you use computer programming to complete a task? How can a step-by-step process help you design or improve a solution to a problem?		SC.K.N.1.1 SC.K.N.1.3 SC.K.N.1.4 SC.K.N.1.5	ELA.K.R.1.1 ELA.K.C.1.2 ELA.K.C.5.1	MA.K.NSO.2.1 MA.K.NSO.1.1 MA.K.NSO.1.2 MA.K.GR.1.4	SC.K.CC.1.1 SC.K.HS.1.3, 4 SC.K.CO.1.3, 4 SC.K.PE.1.1, 2 SC.K.PE.3.1 →4 SC.K.TI.1.1

		Essential Questions	FL Academic Standards for Science	Nature of Science Standards	B.E.S.T Standards-ELA	B.E.S.T Standards-Math	FL Academic Standards for Computer Science
	Animal Adaptations	How do plants and animals adapt to their environments? How can nature inspire solutions to human problems? How can a step-by-step process help you design or improve a solution to a problem?	SC.1.L.14.1 SC.1.P.8.1	SC.1.N.1.1 SC.1.N.1.3	ELA.1.C.4.1	MA.1.AR.1.2	SC.1.CC.1.1 SC.1.CO.1.1, 2 SC.1.CO.1.5 SC.1.PE.3.1, 2 SC.1.RI.2.1
	Designs Inspired by Nature	Why do animals communicate as they do? How can nature inspire solutions to human problems? How can a step-by-step process help you design or improve a solution to a problem?	SC.1.L.14.2 SC.1.L.16.1	SC.1.N.1.1 SC.1.N.1.3	ELA.1.R.2.2 ELA.1.C.1.5 ELA.1.C.4.1	MA.1.GR.1.1 MA.1.GR.1.3	SC.1.CC.1.1 SC.1.CO.1.1, 2 SC.1.CO.1.5 SC.1.PE.3.1 SC.1.RI.2.1
	Living Things: Needs and Impacts (K)	How can plants and animals impact their natural environment to meet their needs? How can humans lessen their negative impact on the natural environment? How can a step-by-step process help you design or improve a solution to a problem?	SC.1.L.17.1	SC.1.N.1.1 SC.1.N.1.3			SC.1.CC.1.1 SC.1.CO.1.1 SC.1.RI.2.1
	Pushes and Pulls (K)	In what ways do forces impact your daily life? How are pushes and pulls related? How can a step-by-step process help you design or improve a solution to a problem?	SC.1.P.12.1 SC.1.P.13.1	SC.1.N.1.1 SC.1.N.1.3			SC.1.CC.1.1 SC.1.CO.1.1 SC.1.RI.2.1
	Light: Observing the Sun, Moon, and Stars	How does the Sun affect your life? Why is understanding cause and effect important to your life? What is the relationship between patterns and natural phenomena?	SC.1.E.5.1 SC.1.E.5.4	SC.1.N.1.1 SC.1.N.1.3	ELA.1.C.4.1	MA.1.M.1.2 MA.1.M.2.1	SC.1.CC.1.1 SC.1.CO.1.1 →3 SC.1.CO.1.5 SC.1.PE.2.3 SC.1.RI.2.1
	The Changing Earth (2)	How can something appear stable when it is actually changing? How are system models used to predict and understand real-world situations or scientific phenomena? How can a step-by-step process help you design or improve a solution to a problem?	SC.1.E.6.3	SC.1.N.1.1 SC.1.N.1.3			SC.1.CC.1.1 SC.1.CO.1.1 SC.1.CO.1.5 SC.1.RI.2.1
	Animated Storytelling	In what ways can stories be told using different tools? How does technology impact our lives? How can collaboration help you design or improve a solution to a problem?		SC.1.N.1.1 SC.1.N.1.3	ELA.1.R.1.1 ELA.C.1.5 ELA.1.C.4.1		SC.1.CC.1.1 SC.1.CO.1.1, 2 SC.1.CO.1.5 SC.1.PE.1.1 SC.1.PE.3.1, 2 SC.1.RI.2.1

		Essential Questions	FL Academic Standards for Science	Nature of Science Standards	B.E.S.T Standards-ELA	B.E.S.T Standards-Math	FL Academic Standards for Computer Science
	<b>Life Cycles and Survival (3)</b>	Why are life cycles of organisms important for life on Earth? How do bees impact our world? How can a step-by-step process help you design or improve a solution to a problem?	SC.2.L.16.1 SC.2.L.17.1	SC.2.N.1.1			SC.2.CC.1.4 SC.2.HS.1.2 SC.2.HS.1.3 SC.2.PE.2.2 SC.2.PE.3.4
	<b>Living Things: Diversity of Life</b>	How do scientists learn about the world? How do diverse habitats meet the needs of organisms? How can a step-by-step process help you design or improve a solution to a problem?	SC.2.L.17.1 SC.1.L.17.2	SC.2.N.1.1		MA.2.M.1.1 MA.2.DP.1.1	SC.2.HS.1.2 SC.2.HS.1.3 SC.2.CO.1.5 SC.2.PE.2.2, 3 SC.2.PE.3.4
	<b>Stability and Motion: Forces and Interactions (3)</b>	In what ways do forces impact your daily life? How do machines make life easier? How can a step-by-step process help you design or improve a solution to a problem?	SC.2.P.13.2	SC.2.N.1.1 SC.2.N.1.5 SC.2.N.1.6			SC.2.HS.1.2 SC.2.HS.1.3 SC.2.CO.1.5
	<b>Materials Science: Properties of Matter</b>	What properties of materials do you need to consider when designing a product? How can we identify when something is (or is not) a solution to a problem?	SC.2.P.8.1 SC.2.P.8.2 SC.2.P.8.4	SC.2.N.1.1 SC.2.N.1.5 SC.2.N.1.6		MA.2.DP.1.1	SC.2.HS.1.2 SC.2.HS.1.3 SC.2.CO.1.5 SC.2.PE.3.4
	<b>Grids and Games</b>	How can learning from others help you design or improve a solution to a problem? In what ways can computer science impact our lives?		SC.2.N.1.1		MA.2.NSO.2.1 MA.2.NSO.2.3	SC.2.HS.1.2 SC.2.HS.1.3 SC.2.HS.2.1 SC.2.PE.1.1 SC.2.PE.3.1, 2 SC.2.TI.1.1, 2



		Essential Questions	FL Academic Standards for Science	Nature of Science Standards	B.E.S.T Standards-ELA	B.E.S.T Standards-Math	FL Academic Standards for Computer Science
	<b>Waves and the Properties of Light (4)</b>	How are waves used to predict results and solve problems? How do the properties of light allow us to see? How can we use patterns to make sense of the world? How can a step-by-step process help you design or improve a solution to a problem?	SC.3.P.10.2 SC.3.P.10.3 SC.3.P.10.4	SC.3.N.1.1 SC.3.N.1.3 SC.3.N.1.6, 7 SC.3.N.3.1, 2			SC.3.CC.1.1, 2 SC.3.CC.2.2 SC.3.HS.1.3 SC.3.HS.2.2 SC.3.CO.1.5
	<b>Materials Science: Form and Function (2)</b>	How does the function of an object influence its form? How does nature influence design? How can a step-by-step process help you design or improve a solution to a problem?	SC.3.P.8.3	SC.3.N.1.1 SC.3.N.1.3 SC.3.N.1.6, 7 SC.3.N.3.1, 2			SC.3.CC.1.1, 2 SC.3.CC.2.2 SC.3.HS.1.3 SC.3.HS.2.2 SC.3.CO.1.5
	<b>Stability and Motion: Science of Flight</b>	In what ways do forces impact our world? How do balanced and unbalanced forces affect aircraft flight? How can a step-by-step process help you design or improve a solution to a problem?		SC.3.N.1.1 SC.3.N.1.3 SC.3.N.1.6, 7 SC.3.N.3.1, 2	ELA.3.C.4.1	MA.3.DP.1.1	SC.3.CC.1.1, 2 SC.3.CC.2.2 SC.3.HS.1.3 SC.3.HS.2.2 SC.3.CO.1.5 SC.3.PE.2.2, 3
	<b>Weather: Factors and Hazards</b>	How does weather affect our lives? How can a step-by-step process help you design or improve a solution to a problem?		SC.3.N.1.1 SC.3.N.1.3 SC.3.N.1.6, 7 SC.3.N.3.1, 2	ELA.3.R.2.2 ELA.3.C.4.1		SC.3.CC.1.1, 2 SC.3.CC.2.2 SC.3.HS.1.3 SC.3.HS.2.2 SC.3.CO.1.5 SC.3.PE.2.2, 3
	<b>Programming Patterns</b>	How does technology impact our lives? How can a step-by-step process help you design or improve a solution to a problem?		SC.3.N.1.1 SC.3.N.1.3 SC.3.N.1.6, 7 SC.3.N.3.1, 2	ELA.3.R.2.2 LA.3.C.3.1		SC.3.CC.1.1, 2 SC.3.CC.2.2 SC.3.HS.1.3 SC.3.HS.2.2 SC.3.CO.1.5 SC.3.PE.1, 2 SC.3.PE.3.2, 3

Essential Questions

FL Academic  
Standards  
for Science

Nature of  
Science  
Standards

B.E.S.T  
Standards-  
ELA

B.E.S.T  
Standards-  
Math

FL Academic  
Standards  
for Computer  
Science



**Variation of Traits  
(3)**

Why do some offspring look like their parents while others do not?  
How are traits of one generation passed to the next?  
How can a step-by-step process help you design or improve a solution to a problem?

SC.4.L.16.2  
SC.4.L.16.3

SC.4.N.1.1  
SC.4.N.1.3,4  
SC.4.N.1.6

**Ecosystems: Flow  
of Matter and  
Energy (5)**

How do matter and energy flow through an ecosystem?  
How does a change in an ecosystem affect its balance?  
How can a step-by-step process help you design or improve a solution to a problem?

SC.4.L.17.2  
SC.4.L.17.3  
SC.4.L.17.4

SC.4.N.1.1  
SC.4.N.1.3,4  
SC.4.N.1.6

**Environmental  
Changes (3)**

How does an animal's habitat affect its survival?  
How do environmental changes affect organisms?  
How can a step-by-step process help you design or improve a solution to a problem?

SC.4.L.17.4

SC.4.N.1.1  
SC.4.N.1.3,4  
SC.4.N.1.6



**Patterns in the  
Universe (5)**

What is Earth's place in the universe?  
How do the predictable patterns of Earth impact our lives?  
How can a step-by-step process help you design or improve a solution to a problem?

SC.4.E.5.1  
SC.4.E.5.2  
SC.4.E.5.3  
SC.4.E.5.4

SC.4.N.1.1  
SC.4.N.1.3,4  
SC.4.N.1.5, 6

**Earth: Past,  
Present, and  
Future**

How has Earth changed over time?  
Why is Earth constantly changing?  
How can a step-by-step process help you design or improve a solution to a problem?

SC.4.E.6.4

SC.4.N.1.1  
SC.4.N.1.3,4  
SC.4.N.1.6

ELA.4.C.1.4  
ELA.4.C.4.1  
ELA.4.C.2.1  
ELA.4.C.5.1



**Input/Output:  
Human Brain**

How does technology impact our lives?  
In what ways do computing systems work together to accomplish tasks?  
How can a step-by-step process help you design or improve a solution to a problem?

SC.4.N.1.1  
SC.4.N.1.3,4  
SC.4.N.1.6

ELA.4.R.2.2  
ELA.4.C.1.4  
ELA.4.C.4.1  
ELA.4.C.2.1  
ELA.4.C.5.1







**Input/Output:  
Computer  
Systems**

How does technology impact our lives?  
In what ways do computing systems work together to accomplish tasks?  
How can a step-by-step process help you design or improve a solution to a problem?



SC.4.N.1.1  
SC.4.N.1.3,4  
SC.4.N.1.6

ELA.4.C.1.4

SC.4.CC.1.1 → 4  
SC.4.HS.1.4, 2.1  
SC.4.CO.1.2, 3  
SC.4.CO.1.5, 1.7  
SC.4.PE.1.2, 2.1,  
2.2, 3.1  
SC.4.TI.1.2

		Essential Questions	FL Academic Standards for Science	Nature of Science Standards	B.E.S.T Standards-ELA	B.E.S.T Standards-Math	FL Academic Standards for Computer Science
	<b>Organisms, Structure and Function (4)</b>	<p>How are organisms structured to support and sustain life?</p> <p>How do scientists and engineers understand the world around them?</p> <p>How can a step-by-step process help you design or improve a solution to a problem?</p>	SC.5.L.17.1	SC.5.N.1.1			SC.5.CC.1.2, 3 SC.5.CC.2.1, 2 SC.5.CO.1.2
	<b>Energy Exploration (4)</b>	<p>Why is energy necessary?</p> <p>How does energy transfer affect your life?</p> <p>How can a step-by-step process help you construct an explanation or design a solution to a problem?</p>	SC.5.P.10.1 SC.5.P.10.2 SC.5.P.10.4 SC.5.P.13.3 SC.5.P.13.4	SC.5.N.1.1 SC.5.N.1.3			SC.5.CC.1.2, 3 SC.5.CC.2.1, 2
	<b>Matter: Properties and Reactions</b>	<p>How do the structures and properties of matter help us solve real-world problems?</p> <p>How do mechanical properties impact engineering design?</p> <p>How can a step-by-step process help you design or improve a solution to a problem?</p>	SC.5.P.8.1 SC.5.P.8.2 SC.5.P.8.3 SC.5.P.8.4	SC.5.N.1.1	ELA.5.C.2.1		SC.5.CC.1.2, 3 SC.5.CC.2.1, 2 SC.5.PE.3.2
	<b>Earth's Water and Interconnected Systems</b>	<p>How do Earth's major systems interact?</p> <p>Is there enough fresh water on Earth?</p> <p>How can a step-by-step process help you design or improve a solution to a problem?</p>	SC.5.P.13.1 SC.5.E.7.1 SC.5.E.7.2	SC.5.N.1.1	ELA.5.R.2.2 ELA.5.C.2.1 ELA.5.C.5.1		SC.5.CC.1.2, 3 SC.5.CC.2.1, 2
	<b>Earth: Human Impact and Natural Disasters (4)</b>	<p>In what ways do human interactions impact Earth?</p> <p>How do natural hazards impact Earth?</p> <p>How can a step-by-step process help you design or improve a solution to a problem?</p>	SC.5.E.7.7	SC.5.N.1.1			SC.5.CC.1.2, 3 SC.5.CC.2.1, 2 SC.5.CO.1.2



		Essential Questions	FL Academic Standards for Science	Nature of Science Standards	B.E.S.T Standards-ELA	B.E.S.T Standards-Math	FL Academic Standards for Computer Science
<div>   </div>	Robotics and Automation	How can automation and robotics be used to protect the Earth’s resources and environment? How can the engineering design process be applied in daily life?		SC.5.N.1.1 SC.5.N.1.3	ELA.5.C.2.1		SC.5.CC.1.2 SC.5.CC.1.3 SC.5.PE.1.4
	Robotics and Automation: Challenge	How can autonomous robots be used to help people? How can a step-by-step process help you design or improve a solution to a problem?		SC.5.N.1.1 SC.5.N.1.3	ELA.5.C.1.4 ELA.5.C.2.1		SC.5.CC.1.2 SC.5.CC.1.3 SC.5.PE.1.4
	Infection: Detection	How can germs be spread from person to person? How do medical professionals use cause and effect relationships to diagnose illnesses? How can a step-by-step process help you design or improve a solution to a problem?		SC.5.N.1.1 SC.5.N.1.3 SC.5.N.1.4	ELA.5.C.1.4 ELA.5.C.2.1		SC.5.CC.1.2 SC.5.CC.1.3
	Infection: Modeling and Simulation	How do computer models and simulations help us make sense of scientific phenomena? In what ways can computer models and simulations be used to predict outcomes? How can a step-by-step process help you design or improve a solution to a problem?		SC.5.N.1.1 SC.5.N.1.3	ELA.5.C.1.4 ELA.5.C.5.1		SC.5.CC.1.2 SC.5.CC.1.3 SC.5.CO.1.2 SC.5.PE.1.4 SC.5.PE.2.2 SC.5.PE.3.1 SC.5.TI.1.1, 2