PLTW Launch Modules Overview K-5
North Carolina Science Standards

This curriculum guide provides information on standards alignments for the following bodies of standards:

1. **North Carolina Science Standards**
2. **NC Standard Course of Study- English Language Arts**
3. **NC Standard Course of Study- Mathematics (K-5)**
4. **NC K-12 Computer Science Standards (K-5)**

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 standards for North Carolina educators. The Grade Level View shows the PLTW Launch Modules that are the "best-fit" for the North Carolina Science Standards. 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.

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

PLTW Computer Science

PLTW Engineering

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.

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LAUNCH North Carolina K-5 Modules Overview

	Physical Science			Life Science			Earth and Space Science	
K	Structure and Function: Exploring Design PS.K.1.2	Spatial Sense and Coding (PK) PS.K.2.1		Living and Nonliving Things (PK) LS.K.1.1	Animal Adaptations (1) LS.K.1.2	Designs Inspired by Nature (1) LS.K.2.1, LS.K.2.2	Sunlight and Weather ESS.K.1.1, ESS.K.1.2, ESS.K.1.3	
1	Pushes and Pulls (K) PS.1.1.1, PS.1.1.2			Living Things: Needs and Impacts (K) LS.1.1.1, LS.1.1.2		Living Things: Diversity of Life (2) LS.1.1.2	Light: Observing the Sun, Moon, and Stars ESS.1.1.1, ESS.1.1.2	
2	Light and Sound (1) PS.2.2.1, PS.2.2.2			Life Cycles and Survival (3) LS.2.1.1, LS.2.1.2		Variation of Traits (3) LS.2.2.1, LS.2.2.2	Weather: Factors and Hazards (3) ESS2.1.2, ESS2.1.3, ESS2.1.4	
3	Materials Science: Properties of Matter PS.3.1.1, PS.3.1.2, PS.3.1.3	Stability and Motion: Forces and Interactions PS.3.2.1	Stability and Motion: Science of Flight PS.3.2.3				The Changing Earth (2) ESS.3.2.1, ESS.3.2.2	
4	Energy Exploration PS.4.2.1, PS.4.2.2	Waves and the Properties of Light PS.4.3.1, PS.4.3.2		Organisms: Structure and Function LS.4.1.1	Input/Output: Human Brain LS.4.1.2	Environmental Changes (3) LS.4.1.3, LS.4.2.1, LS.4.2.2, ESS.4.3.3	Earth: Past, Present, and Future ESS.4.2.3	Earth: Human Impact and Natural Disasters ESS.4.3.3
5	Matter: Properties and Reactions PS.5.1.2			Ecosystems: Flow of Matter and Energy LS.5.2.2, LS.5.2.3			Earth's Water and Interconnected Systems ESS.5.1.4	

PLTW LAUNCH Kindergarten

	Essential Questions	NC Science Standards	NC ELA Standards	NC Math Standards	NC Computer Science Standards
Structure and Function: Exploring Design	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?	PS.K.1.2	RL.K.1 RL.K.2 RL.K.3 SL.K.1.a SL.K.1.b	NC.K.CC.3 → 5 NC.K.MD.2 NC.K.G.2 Math Practices 1-5	K2-IC-03, 04
Spatial Sense and Coding (PK)	How can you use computer programming to complete a task? How is creating a sequence of steps useful in real life? How can a step-by-step process help you design or improve a solution to a problem?	PS.K.2.1			K2-IC-03, 04
Living and Nonliving Things (PK)	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?	LS.K.1.1			K2-IC-03, 04
Animal Adaptations (1)	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?	LS.K.1.2	RL.K.1 RI.K.1 SL.K.2 SL.K.5	NC.K.MD.3 Math Practices 1-6	K2-IC-03, 04
Designs Inspired by Nature (1)	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?	LS.K.1.2 LS.K.2.1 LS.K.2.2	RI.K.1 RI.K.2 RI.K.10 W.K.5 SLK.2 SL.K.5	Math Practices 1, 3, 5	K2-IC-03, 04
Sunlight and Weather	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?	ESS.K.1.1 ESS.K.1.2 ESS.K.1.3	RL.K.1 RL.K.3 RL.K.10 RI.K.1 RI.K.2 RI.K.10	NC.K.CC.3 NC.K.MD.2 Math Practices 1-3	K2-DA-03, 04 K2-IC-03, 04
Structure and Function: Human Body	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?		RL.K.1 RL.K.2 RL.K.3 RL.K.10 SL.K.1.a SL.K.1.b	NC.K.CC.3 → 6 Math Practices 1-5	K2-IC-03, 04
Animals and Algorithms	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?		RL.K.3 W.K.3 W.K.4 SL.K.1.a SL.K.1.b SL.K.5	NC.K.CC.1 NC.K.CC.4 NC.K.CC.5 NC.K.G.1 Math Practices 1-3	K2-CS-03 K2-NI-03 K2-AP-02→05 K2-AP-07, 08 K2-IC-03, 04

PLTW LAUNCH 1st Grade

	Essential Questions	NC Science Standards	NC ELA Standards	NC Math Standards	NC Computer Science Standards
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?	PS.1.1.1 PS.1.1.2	SL.1.4 SL.1.5	Math Practices 1, 3, 5	K2-AP-04 K2-IC-03, 04
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?	LS.1.1.1 LS.1.1.2	RL.1.3 RI.1.1 RI.1.2 W.1.5 SL.1.2 SL.1.5	Math Practices 1, 3	K2-AP-04 K2-IC-03, 04
Living Things: Diversity of Life (2)	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?	LS.1.1.2	W.1.5 W.1.6	Math Practices 1-6	K2-AP-04 K2-IC-03, 04
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?	ESS.1.1.1 ESS1.1.2	RL.1.1 RI.1.1 W.1.6 SL.1.1.C SL.1.5	NC.1.MD.1 NC.1.MD.3 NC.1.MD.4 Math Practices 1-6	K2-DA-04 K2-AP-04 K2-IC-03, 04
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?		RL.1.1 RL.1.2 RL.1.3 SL.1.1.a SL.1.2 SL.1.4	Math Practices 1-8	K2-CS-02→03 K2-NI-02, 03 K2-DA-01, 04 K2-AP-01→08 K2-IC-01 K2-IC-03, 04

PLTW LAUNCH 2nd Grade

	Essential Questions	NC Science Standards	NC ELA Standards	NC Math Standards	NC Computer Science Standards
Light and Sound (1)	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?	PS.2.2.1 PS.2.2.2	RL.2.1 RL.2.2 RI.2.1 RI.2.2 SL.2.2 SL.2.5	Math Practices 1, 3, 5	K2-AP-04 K2-IC-03. 04
Life Cycles and Survival (3)	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?	LS.2.1.1 LS.2.1.2	RI.2.1 RI.2.2 RI.2.3 RI.2.4 W.2.7 W.2.8	Math Practices 1-3	K2-DA-04 K2-AP-04 K2-IC-03. 04
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?	LS.2.2.1 LS.2.2.2	RI.2.1 RI.2.2 RI.2.3 RI.2.4 W.2.8 SL.2.2	NC.2.MD.10 Math Practices 1-7	K2-DA-03. 04 K2-AP-04 K2-IC-03. 04
Weather: Factors and Hazards (3)	How does weather affect our lives? How can a step-by-step process help you design or improve a solution to a problem?	ESS.2.1.2 ESS.2.1.3 ESS.2.1.4	RI.2.1 RI.2.2 RI.2.3 RI.2.4 W.2.7 W.2.8	Math Practices 1-3, 5-6	K2-DA-03. 04 K2-AP-04 K2-IC-03. 04
Materials Science: Form and Function	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?		RL.2.1 RI.2.1 RI.2.3 W.2.8 SL.2.2	Math Practices 1, 3-5	K2-AP-04 K2-IC-03. 04
Grids and Games	How can learning from others help you design or improve a solution to a problem? In what ways can computer science impact our lives?		RL.2.1 RL.2.7 SL.2.2	NC.2.OA.2 NC.2.NBT.5 Math Practices 1-4, 6	K2-CS-02, 03 K2-NI-02, 03 K2-DA-01 K2-AP-02→8 K2-IC-01 K2-IC-03. 04

PLTW LAUNCH 3rd Grade

	Essential Questions	NC Science Standards	NC ELA Standards	NC Math Standards	NC Computer Science Standards
Materials Science: Properties of Matter (2)	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?	PS.3.1.1 PS.3.1.2	RI.3.1 W.3.5 RI.3.3 W.3.6	NC.2.MD.10 Math Practices 1, 3-6	35-DA-03, 04
Stability and Motion: Forces and Interactions	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?	PS.3.1.3	RI.3.1 W.3.5 RI.3.3 W.3.6	Math Practices 1, 3, 5	
Stability and Motion: Science of Flight	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?	PS.3.2.2	RI.3.1 W.3.5 RI.3.3 W.3.6	Math Practices 1-3, 5-6	35-DA-03, 04
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?	ESS.3.2.1 ESS.3.2.2	RL.3.1 W.3.5 RI.3.1 W.3.6 RI.3.3 SL.3.2	Math Practices 1-6	35-DA-03, 04
Programming Patterns	How does technology impact our lives? How can a step-by-step process help you design or improve a solution to a problem?		RI.3.1 W.3.4 RI.3.2 RI.3.3 SL.3.2	Math Practices 1-3, 5-6, 8	35-CS-02, 03 35-NI-02 35-AP-01 35-AP-03→06 35-AP-08 35-AP-10, 12

PLTW LAUNCH

4th Grade

	Essential Questions	NC Science Standards	NC ELA Standards	NC Math Standards	NC Computer Science Standards
Energy Exploration	Why is energy necessary? How does energy transfer affect your life? How can a step-by-step process help you construct an explanation or design a solution to a problem?	PS.4.2.1 PS.4.2.2	RI.4.1 RI.4.2 RI.4.3 RI.4.4 RI.4.7 W.4.2.e W.4.5 SL.4.3 SL.4.4 SL.4.5	Math Practices 1, 3, 5-6	35-DA-03, 04
Waves and the Properties of Light	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?	PS.4.3.2 PS.4.3.2	SL.4.5	NC.4.MD.6 NC.4.G.1 Math Practices 1-6	35-DA-03, 04
Organisms: Structure and Function	How are organisms structured to support and sustain life? How do scientists and engineers understand the world around them? How can a step-by-step process help you design or improve a solution to a problem?	LS.4.1.1	RI.4.2 RI.4.3 RI.4.4 W.4.1.b W.4.2.e W.4.6 SL.4.2 SL.4.4 SL.4.5	Math Practices 1, 3, 5-6	35-DA-03, 04
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?	LS.4.1.2	RI.4.1 RI.4.2 RI.4.3 RI.4.4 RI.4.7 W.4.5 SL.4.3 SL.4.4 SL.4.5	Math Practices 1,3, 5-6	35-DA-03, 04
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?	LS.4.1.3 LS.4.2.1 LS.4.2.2 ESS.4.2.3	RI.4.1 RI.4.2 RI.4.4 W.4.5 W.4.6 SL.4.4	Math Practices 1-5	35-DA-03, 04
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?	ESS.4.2.3	RI.4.3 RI.4.4 RI.4.7 W.4.5 W.4.6 SL.4.4 SL.4.5	Math Practices 1, 3, 5-6	35-DA-03, 04 35-IC-05
Earth: Human Impact and Natural Disasters	In what ways do human interactions impact Earth? How do natural hazards impact Earth? How can a step-by-step process help you design or improve a solution to a problem?	ESS.4.3.3	RI.4.1 RI.4.3 RI.4.4 RI.4.9 W.4.5 W.4.6 SL.4.4	Math Practices 1-4	35-DA-03, 04
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?		RI.4.3 RI.4.4 SL.4.2	Math Practices 1-5, 8	35-CS-02, 03 35-NI-01, 02 35-DA-03, 04 35-AP-01→12 35-IC-02, 03

PLTW LAUNCH 5th Grade

	Essential Questions	NC Science Standards	NC ELA Standards	NC Math Standards	NC Computer Science Standards
Matter: Properties and Reactions	How do the structures and properties of matter help us solve real-world problems? How do mechanical properties impact engineering design? How can a step-by-step process help you design or improve a solution to a problem?	PS.5.1.2	RI.5.7 W.5.6 SL.5.2 SL.5.4	NC.5.MD.4 Math Practices 1-6	
Ecosystems: Flow of Matter and Energy	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?	LS.5.2.2	RI.5.1 RI.5.3 RI.5.4 RI.5.7 RI.5.9 W.5.2.e W.5.5 W.5.6 SL.5.2 SL.5.5	NC.5.MD.2 Math Practices 1-6	35-DA-03, 04
Earth's Water and Interconnected Systems	How do Earth's major systems interact? Is there enough fresh water on Earth? How can a step-by-step process help you design or improve a solution to a problem?	ESS.5.1.4	RI.5.3 RI.5.4 RI.5.7 RI.5.9 W.5.6 SL.5.2 SL.5.4 SL.5.5	NC.5.NBT.5 Math Practices 1-6	35-DA-03, 04

PLTW LAUNCH 5th Grade

	Essential Questions	NC Science Standards	NC ELA Standards	NC Math Standards	NC Computer Science Standards
Patterns in the Universe	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?		RI.5.1 RI.5.4 RI.5.7 RI.5.8 RI.5.9 W.5.5 W.5.6 SL.5.2 SL.5.4 SL.5.5	Math Practices 1-4, 6	35-DA-03, 04 35-IC-02, 03 35-IC-05
Robotics and Automation	How can automation and robotics by used to protect the Earth's resources and environment? How can the engineering design process be applied in daily life?		RI.5.1 RI.5.7 RI.5.9 W.5.5 W.5.6 SL.5.4	Math Practices 1, 3, 5, 6	35-CS-02, 03 35-NI-02 25-IC-01
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?		RI.5.1 RI.5.7 RI.5.9 W.5.5 W.5.6 SL.5.4	Math Practices 1, 3, 5, 6	35-AP-01 35-AP-03→06 35-AP-08 35-AP-10→12 25-IC-01
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?		RI.5.2 RI.5.3 RI.5.4 RI.5.7 RI.5.9 RI.5.10 SL.5.4	5.NBT.A.2 Math Practices 1, 3, 6	35-DA-03, 04
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?		RI.5.2 RI.5.4 RI.5.7 RI.5.9 SL.5.5	NC.5.NBT.1 NC.5.NBT.3 Math Practices 1-6, 8	35-DA-03, 04 35-AP-01→12