PLTW Launch Standards Connection

Living Things: Diversity of Life

Connections to Standards in PLTW Launch

PLTW curriculum is designed to empower students to thrive in an evolving world. As a part of the design process when developing and updating our curriculum, we focus on connections to a variety of standards. This PLTW Launch module connects to standards in the following:

Next Generation Science Standards

Ecosystems: Interactions, Energy, and Dynamics

2-LS2-1

Plan and conduct an investigation to determine if plants need sunlight and water to grow.

Biological Evolution: Unity and Diversity

2-LS4-1

Make observations of plants and animals to compare the diversity of life in different habitats.

Engineering Design

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.

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.

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.

Science and Engineering Practices: Asking Questions and Defining Problems

Asking questions and defining problems in K–2 builds on prior experiences and progresses to simple descriptive questions that can be tested.

Science and Engineering Practices: Developing and Using Models

Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.

Science and Engineering Practices: Planning and Carrying Out Investigations

Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.

- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.

- Make observations (firsthand or from media) and/or measurements to collect data that can be used to make comparisons.

Science and Engineering Practices: Analyzing and Interpreting Data

Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.

Next Generation Science Standards

Science and Engineering Practices: Using Mathematics and Computational Thinking

Mathematical and computational thinking in K–2 builds on prior experience and progresses to recognizing that mathematics can be used to describe the natural and designed world(s).

Science and Engineering Practices: Constructing Explanations and Designing Solutions

Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.

Science and Engineering Practices: Engaging in Argument from Evidence

Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s).

Science and Engineering Practices: Obtaining, Evaluating, and Communicating Information

Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.

Disciplinary Core Ideas (K-2)

Life Science

LS2.A Interdependent Relationships in Ecosystems

- Plants depend on water and light to grow.

LS4.D Biodiversity and Humans

- There are many different kinds of living things in any area, and they exist in different places on land and in water.

Engineering, Technology, and Applications of Science

ETS1.A Defining and Delimiting Engineering Problems

- Asking questions, making observations, and gathering information are helpful in thinking about problems.

ETS1.A Defining and Delimiting Engineering Problems

- Before beginning to design a solution, it is important to clearly understand the problem.

ETS1.B Developing Possible Solutions

- Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.

ETS1.C Optimizing the Design Solution

- Because there is always more than one possible solution to a problem, it is useful to compare and test designs.

Next Generation Science Standards

Crosscutting Concepts (K-2)

Cause and Effect: Mechanism and Prediction – Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.

- Events have causes that generate observable patterns.

Connections to Nature of Science (K-2)

Science Knowledge is Based on Empirical Evidence

- Scientists look for patterns and order when making observations about the world.

Computer Science Teachers Association K-12 Computer Science

In Spring 2023 PLTW submitted all necessary documentation required by the Computer Science Teachers Association (CSTA) for a crosswalk review of our Launch and Gateway curricula by the CSTA Standards Review Team. While we anticipate approval and validation by CSTA, the review is pending.

Data and Analysis

Collection Visualization & Transformation

1A-DA-06

Collect and present the same data in various visual formats.

Inference & Models

1A-DA-07

Identify and describe patterns in data visualizations, such as charts or graphs, to make predictions.

Algorithms and Programming

Modularity

1A-AP-11

Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.

Impacts of Computing

Social Interactions

1A-IC-17

Work respectfully and responsibly with others online.

Safety Law & Ethics

1A-IC-18

Keep login information private, and log off of devices appropriately.

Common Core State Standards English Language Arts - Second Grade

Writing

Research to Build and Present Knowledge

CCSS.ELA-LITERACY.W.2.7

Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).

CCSS.ELA-LITERACY.W.2.8

Recall information from experiences or gather information from provided sources to answer a question.

Common Core State Standards Mathematics - Second Grade

Measurement and Data

Measure and estimate lengths in standard units.

CCSS.MATH.CONTENT.2.MD.A.1

Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

Represent and interpret data.

CCSS.MATH.CONTENT.2.MD.D.10

Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

Mathematical Practices

CCSS.MATH.PRACTICE.MP1

Make sense of problems and persevere in solving them.

CCSS.MATH.PRACTICE.MP2

Reason abstractly and quantitatively.

CCSS.MATH.PRACTICE.MP3

Construct viable arguments and critique the reasoning of others.

CCSS.MATH.PRACTICE.MP4

Model with mathematics.

CCSS.MATH.PRACTICE.MP5

Use appropriate tools strategically.

CCSS.MATH.PRACTICE.MP6

Attend to precision.

Common Core State Standards Mathematics - Second Grade

Included in Optional Extensions

Operations and Algebraic Thinking

Represent and solve problems involving addition and subtraction.

CCSS.MATH.CONTENT.2.OA.A.1

Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with

Work with equal groups of objects to gain foundations for multiplication.

CCSS.MATH.CONTENT.2.OA.C.4

Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

Number and Operations in Base Ten

Use place value understanding and properties of operations to add and subtract.

CCSS.MATH.CONTENT.2.NBT.B.5

Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

Mathematical Practices

CCSS.MATH.PRACTICE.MP7

Look for and make use of structure.

References

Computer Science Teachers Association. (2017). *CSTA K-12 Computer Science Standards, revised 2017*. http://www.csteachers.org/standards

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NGSS Lead States. (2013). *Next Generation Science Standards: For states, by states.* National Academies Press.