PLTW Launch Standards Connection

Animated Storytelling

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

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: Analyzing and Interpreting Data

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

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.

Next Generation Science Standards

Disciplinary Core Ideas (K-2)

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.

Crosscutting Concepts (K-2)

Patterns – Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.

- Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.

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 Engineering, Technology, and Applications of Science (K-2)

Influence of Engineering, Technology, and Science on Society and the Natural World

- People depend on various technologies in their lives; human life would be very different without technology.

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.

Computing Systems

Devices

1A-CS-01

Select and operate appropriate software to perform a variety of tasks, and recognize that users have different needs and preferences for the technology they use.

Hardware & Software

1A-CS-02

Use appropriate terminology in identifying and describing the function of common physical components of computing systems (hardware).

Troubleshooting

1A-CS-03

Describe basic hardware and software problems using accurate terminology.

Networks and the Internet

Cybersecurity

1A-NI-04

Explain what passwords are and why we use them, and use strong passwords to protect devices and information from unauthorized access.

Data and Analysis

Storage

1A-DA-05

Store, copy, search, retrieve, modify, and delete information using a computing device and define the information stored as data.

Algorithms and Programming

Algorithms

1A-AP-08

Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks.

Variables

1A-AP-09

Model the way programs store and manipulate data by using numbers or other symbols to represent information.

Control

1A-AP-10

Develop programs with sequences and simple loops, to express ideas or address a problem.

Computer Science Teachers Association K-12 Computer Science

Modularity

1A-AP-11

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

Program Development

1A-AP-12

Develop plans that describe a program's sequence of events, goals, and expected outcomes.

1A-AP-13

Give attribution when using the ideas and creations of others while developing programs.

1A-AP-14

Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops.

1A-AP-15

Using correct terminology, describe steps taken and choices made during the iterative process of program development.

Impacts of Computing

Culture

1A-IC-16

Compare how people live and work before and after the implementation or adoption of new computing technology.

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.

International Society for Technology in Education Standards for Students

Empowered Learner

1a

Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.

1c

Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

Digital Citizen

2a

Students cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.

2b

Students engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.

2c

Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.

2d

Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.

Knowledge Constructor

3d

Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

Innovative Designer

4a

Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

4b

Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

4c

Students develop, test and refine prototypes as part of a cyclical design process.

4d

Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.

International Society for Technology in Education Standards for Students

Computational Thinker

5a

Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.

5c

Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

5d

Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Creative Communicator

6a

Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.

6b

Students create original works or responsibly repurpose or remix digital resources into new creations.

6c

Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.

Global Collaborator

7c

Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.

Common Core State Standards English Language Arts - First Grade

Reading Standards for Literature

Key Ideas and Details

CCSS.ELA-LITERACY.RL.1.1

Ask and answer questions about key details in a text.

CCSS.ELA-LITERACY.RL.1.2

Retell stories, including key details, and demonstrate understanding of their central message or lesson.

CCSS.ELA-LITERACY.RL.1.3

Describe characters, settings, and major events in a story, using key details.

Writing Standards

Text Types and Purposes

CCSS.ELA-LITERACY.W.1.3

Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure.

Production and Distribution of Writing

CCSS.ELA-LITERACY.W.1.6

With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.

Speaking and Listening

Comprehension and Collaboration

CCSS.ELA-LITERACY.SL.1.1

Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.

CCSS.ELA-LITERACY.SL.1.1.A

Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).

CCSS.ELA-LITERACY.SL.1.2

Ask and answer questions about key details in a text read aloud or information presented orally or through other media.

Presentation of Knowledge and Ideas

CCSS.ELA-LITERACY.SL.1.4

Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.

Common Core State Standards Mathematics - First Grade

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.MP6

Attend to precision.

CCSS.MATH.PRACTICE.MP7

Look for and make use of structure.

CCSS.MATH.PRACTICE.MP8

Look for and express regularity in repeated reasoning.

References

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

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