PLTW Launch Standards Connection

Spatial Sense and Coding

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:

NAEYC Early Learning Program Standards

Relationships

This program promotes positive relationships between all children and adults to encourage each child's sense of individual worth and belonging as part of a community and to foster each child's ability to contribute as a responsible community member.

Curriculum

The program implements a curriculum that is consistent with its goals for children and that promotes learning and development in each of the following areas: social, emotional, physical, language, and cognitive.

Teaching

The program uses a variety of developmentally, culturally, and linguistically appropriate and effective teaching approaches, which enhance each child's learning and development in the context of the program's curriculum goals.

Assessment of Child Progress

The program uses a variety of formal and informal assessment approaches to provide information on children's learning and development. These assessments occur in the context of reciprocal communications between teachers and families, and with sensitivity to cultural contexts in which children are developing.
The program uses assessment results to inform decisions about the children in their care, to improve teaching practices, and to drive program

Families

The program establishes and maintains collaborative relationships with each child's family to foster children's development in all settings. These relationships are sensitive to family composition, language, and culture.

Community Relationships

The program establishes relationships with and uses the resources of the children's communities to support the achievement of program goals.

Physical Environment

The program has a safe and healthful environment that provides appropriate and well-maintained indoor and outdoor physical environments. The environment includes facilities, equipment, and materials to facilitate child and staff learning and development.

Head Start Early Learning Outcomes Framework

Approaches to Learning

Cognitive Self-regulation (Executive Functioning)

Goal P-ATL 6

Child maintains focus and sustains attention with minimal adult support.

Goal P-ATL 7

Child persists in tasks.

Goal P-ATL 8

Child holds information in mind and manipulates it to perform tasks.

Goal P-ATL 9

Child demonstrates flexibility in thinking and behavior.

Initiative and Curiosity

Goal P-ATL 10

Child demonstrates initiative and independence.

Goal P-ATL 11

Child shows interest in and curiosity about the world around them.

Creativity

Goal P-ATL 12

Child expresses creativity in thinking and communication.

Goal P-ATL 13

Child uses imagination in play and interactions with others.

Language and Communication

Attending and Understanding

Goal P-LC 1

Child attends to communication and language from others.

Goal P-LC 2

Child understands and responds to increasingly complex communication and language from others.

Communicating and Speaking

Goal P-LC 3

Child varies the amount of information provided to meet the demands of the situation.

Goal P-LC 4

Child understands, follows, and uses appropriate social and conversational rules.

Goal P-LC 5

Child expresses self in increasingly long, detailed, and sophisticated ways.

Head Start Early Learning Outcomes Framework

Vocabulary

Goal P-LC 6

Child understands and uses a wide variety of words for a variety of purposes.

Goal P-LC 7

Child shows understanding of word categories and relationships among words.

Literacy

Comprehension and Text Structure

Goal P-LIT 4

Child demonstrates an understanding of narrative structure through storytelling/re-telling.

Goal P-LIT 5

Child asks and answers questions about a book that was read aloud.

Writing

Goal P-LIT 6

Child writes for a variety of purposes using increasingly sophisticated marks.

Mathematics Development

Counting and Cardinality

Goal P-MATH 2

Child recognizes the number of objects in a small set.

Operations and Algebraic Thinking

Goal P-MATH 7

Child understands simple patterns.

Geometry and Spatial Sense

Goal P-MATH 9

Child identifies, describes, compares, and composes shapes.

Goal P-MATH 10

Child explores the positions of objects in space.

Scientific Reasoning

Scientific Inquiry

Goal P-SCI 1

Child observes and describes observable phenomena (objects, materials, organisms, and events).

Goal P-SCI 2

Child engages in scientific talk.

Head Start Early Learning Outcomes Framework

Goal P-SCI 3

Child compares and categorizes observable phenomena.

Reasoning and Problem-Solving

Goal P-SCI 4

Child asks a question, gathers information, and makes predictions.

Goal P-SCI 5

Child plans and conducts investigations and experiments.

Goal P-SCI 6

Child analyzes results, draws conclusions, and communicates results.

Next Generation Science Standards

While NGSS does not include standards for early childhood learning, research led the PLTW Launch team to develop content that provides a scaffold to NGSS. Modules address Science and Engineering Practices, Crosscutting Concepts, and Disciplinary Core Ideas, and also provide a learning progression toward elementary 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: 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.

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).

Next Generation Science Standards

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 Idea (K-2)

Engineering, Technology, and Applications of Science

ETS1.A Defining and Delimiting Engineering Problems

- A situation that people want to change or create can be approached as a problem to be solved through engineering.

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)

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.

Systems and System Models – A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.

- Systems in the natural and designed world have parts that work together.

Next Generation Science Standards

Structure and Function – The way an object is shaped or structured determines many of its properties and functions.

- The shape and stability of structures of natural and designed objects are related to their function(s).

Computer Science Teachers Association K-12 Computer Science

Since PreK standards are not included in CSTA K-12 Computer Science Standards, PLTW Launch PreK modules address skills that easily scaffold to expectations for learning in the K–2 grade bands.

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.

Algorithms and Programming

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.

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.

Common Core State Standards English Language Arts - Kindergarten

CCSS does not provide standards for early childhood learning. As with NGSS, PLTW Launch PreK modules offer a scaffold of learning that moves toward kindergarten standards in ELA and Mathematics.

Literature Standards

Key Ideas and Details

CCSS.ELA-LITERACY.RL.K.1

With prompting and support, ask and answer questions about key details in a text.

CCSS.ELA-LITERACY.RL.K.2

With prompting and support, retell familiar stories, including key details.

CCSS.ELA-LITERACY.RL.K.3

With prompting and support, identify characters, settings, and major events in a story.

Language Arts Speaking and Listening Standards

Comprehension and Collaboration

CCSS.ELA-LITERACY.SL.K.1

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

CCSS.ELA-LITERACY.SL.K.1.a

Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion).

CCSS.ELA-LITERACY.SL.K.1.b

Continue a conversation through multiple exchanges.

Common Core State Standards Mathematics - Kindergarten

CCSS does not provide standards for early childhood learning. As with NGSS, PLTW Launch PreK modules offer a scaffold of learning that moves toward kindergarten standards in ELA and Mathematics.

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.MP4

Model with mathematics.

CCSS.MATH.PRACTICE.MP5

Use appropriate tools strategically.

References

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

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