PLTW Launch Standards Connection

Matter: Floating and Sinking

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 1

Child knows number names and the count sequence.

Geometry and Spatial Sense

Goal P-MATH 9

Child identifies, describes, compares, and composes shapes.

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.

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.

Head Start Early Learning Outcomes Framework

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

Matter and Its Interactions

2-PS1-1

Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

2-PS1-2

Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.

2-PS1-3

Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.

2-PS1-4

Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.

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.

Next Generation Science Standards

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.

Disciplinary Core Idea (K-2)

Physical Science

PS1.A Structure and Properties of Matter

- Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties.

PS1.A Structure and Properties of Matter

- Different properties are suited to different purposes.

PS1.A Structure and Properties of Matter

- A great variety of objects can be built up from a small set of pieces.

PS1.B Chemical Reactions

- Heating and cooling substances cause changes that are sometimes reversible and sometimes not.

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.

Next Generation Science Standards

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.

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.

Energy and Matter: Flows, Cycles, and Conservation – Tracking energy and matter flows, into, out of, and within systems helps one understand their system’s behavior.

- Objects may break into smaller pieces, be put together into larger pieces, or change shapes.

Connections to Nature of Science (K-2)

Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena

- Scientists search for cause and effect relationships to explain natural events.

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

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

- Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world.

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.

Counting and Cardinality

Count to tell the number of objects.

CCSS.MATH.CONTENT.K.CC.B.4

Understand the relationship between numbers and quantities; connect counting to cardinality.

Geometry

Analyze, compare, create, and compose shapes.

CCSS.MATH.CONTENT.K.G.B.5

Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

Mathematical Practices

CCSS.MATH.PRACTICE.MP1

Make sense of problems and persevere in solving them.

References

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