

Disciplinary Core Idea

K.PS2.A: Forces and Motion

Pushes and pulls can have different strengths and directions. (K-PS2-1), (K-PS2-2)

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K.PS2.A: Forces and Motion

Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. (K-PS2-1), (K-PS2-2)

Disciplinary Core Idea

K.PS2.B: Types of Interactions

When objects touch or collide, they push on one another and can change motion. (K-PS2-1)

Disciplinary Core Idea

K.PS3.C: Relationship Between Energy and Forces

A bigger push or pull makes things speed up or slow down more quickly. (K-PS2-1)

Disciplinary Core Idea

K.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. Such problems may have many acceptable solutions. (K-PS2-2)

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K.ESS3.B: Natural Hazards

Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. (K-ESS3-2)

Disciplinary Core Idea

K.ETS1.A: Defining and Delimiting Engineering Problems

Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-ESS3-2)

Disciplinary Core Idea

K.ESS3.C: Human Impacts on Earth Systems

Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (K-ESS3-3)

Disciplinary Core Idea

K.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. (K-ESS3-3)

Performance Expectation

K-PS2-1: Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object

Clarification Statement: Examples of pushes or pulls could include a string attached to an object being pulled, a person pushing an object, a person stopping a rolling ball, and two objects colliding and pushing on each other.

Assessment Boundary: Assessment is limited to different relative strengths or different directions, but not both at the same time. Assessment does not include non-contact pushes or pulls such as those produced by magnets.

Performance Expectation

K-PS2-2: Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.

Clarification Statement: Examples of problems requiring a solution could include having a marble or other object move a certain distance, follow a particular path, and knock down other objects. Examples of solutions could include tools such as a ramp to increase the speed of the object and a structure that would cause an object such as a marble or ball to turn.

Assessment Boundary: Assessment does not include friction as a mechanism for change in speed.

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Assessment Boundary: Assessment does not include friction as a mechanism for change in speed.

Performance Expectation

K-ESS3-2: Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.

Clarification Statement: Emphasis is on local forms of severe weather.

Assessment Boundary: none

Performance Expectation

K-ESS3-3: Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

Clarification Statement: Examples of human impact on the land could include cutting trees to produce paper and using resources to produce bottles. Examples of solutions could include reusing paper and recycling cans and bottles.

Assessment Boundary: none

Science and Engineering Practice

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.

With guidance, plan and conduct an investigation in collaboration with peers. (K-PS2-1)

Science and Engineering Practice

Analyzing and Interpreting Data

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

Analyze data from tests of an object or tool to determine if it works as intended. (K-PS2-2)

Science and Engineering Practice

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Science and Engineering Practice

Asking Questions and Defining Problems

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

Ask questions based on observations to find more information about the designed world. (K-ESS3-2)

Science and Engineering Practice

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.

Read grade-appropriate texts and/or use media to obtain scientific information to describe patterns in the natural world. (K-ESS3-2)

Science and Engineering Practice

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.

Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. (K-ESS3-3)

Crosscutting Concept

Cause and Effect

Simple tests can be designed to gather evidence to support or refute student ideas about causes. (K-PS2-1), (K-PS2-2)

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Connection to Nature of Science

Scientific Investigations Use a Variety of Methods

Scientists use different ways to study the world. (K-PS2-1)

Connection to Engineering, Technology, and Applications of Science

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

People depend on various technologies in their lives; human life would be very different without technology. (K-ESS3-2)

Connection to Engineering, Technology, and Applications of Science

Interdependence of Science, Engineering, and Technology

People encounter questions about the natural world every day. (K-ESS3-2)

Common Core State Standards for ELA/Literacy

Reading Informational Text

RI.K.1 - Key Ideas and Details

With prompting and support, ask and answer questions about key details in a text. (K-PS2-2)

Common Core State Standards for ELA/Literacy

Speaking & Listening

SL.K.3 - Continue a conversation through multiple exchanges.

Ask and answer questions in order to seek help, get information, or clarify something that is not understood. (K-PS2-2)

Common Core State Standards for ELA/Literacy

Card Type name

W.K.7 - Research to Build and Present Knowledge

Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-PS2-1)

Common Core State Standards for Mathematics

Measurement & Data

K.MD.A.1 - Describe and compare measurable attributes.

Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. (K-PS2-1)

Common Core State Standards for Mathematics

Measurement & Data

K.MD.A.2 - Describe and compare measurable attributes.

Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. (K-PS2-1)

Common Core State Standards for Mathematics

Mathematical Practices

MP.2 - Reason abstractly and quantitatively

Reason abstractly and quantitatively. (K-PS2-1)