DCI: Motion and Stability: Forces and Interactions

K.PS2.A: Forces and Motion

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

DCI: Motion and Stability: Forces and Interactions

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)

DCI: Motion and Stability: Forces and Interactions

K.PS2.B: Types of Interactions

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

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)

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)

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.

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.

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)

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)

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)

Scientific Investigations Use a Variety of Methods

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

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)

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)

Mathematical Practices

MP.2 - Reason abstractly and quantitatively

CCSS text (K-PS2-1)