

### Disciplinary Core Idea

#### **K.PS3.B: Conservation of Energy and Energy Transfer**

Sunlight warms Earth's surface. (K-PS3-1), (K-PS3-2)

### Disciplinary Core Idea

#### **K.ESS2.D: Weather and Climate**

Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time. (K-ESS2-1)

### Disciplinary Core Idea

#### **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.PS2.A: Forces and Motion**

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

### Disciplinary Core Idea

#### **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-PS2-2)

#### 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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### 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-ESS2-1: Use and share observations of local weather conditions to describe patterns over time.**

**Clarification Statement:** Examples of qualitative observations could include descriptions of the weather (such as sunny, cloudy, rainy, and warm); examples of quantitative observations could include numbers of sunny, windy, and rainy days in a month. Examples of patterns could include that it is usually cooler in the morning than in the afternoon and the number of sunny days versus cloudy days in different months.

**Assessment Boundary:** Assessment of quantitative observations limited to whole numbers and relative measures such as warmer/cooler.

### 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-PS3-1: Make observations to determine the effect of sunlight on Earth's surface.**

**Clarification Statement:** Examples of Earth's surface could include sand, soil, rocks, and water

**Assessment Boundary:** Assessment of temperature is limited to relative measures such as warmer/cooler.

### Performance Expectation

**K-PS3-2: Use tools and materials provided to design and build a structure that will reduce the warming effect of sunlight on an area.**

**Clarification Statement:** Examples of structures could include umbrellas, canopies, and tents that minimize the warming effect of the sun.

**Assessment Boundary:** none

### 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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### 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

### 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

### 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.

Make observations (firsthand or from media) to collect data that can be used to make comparisons. (K-PS3-1)

## 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.

Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-ESS2-1)

## Science and Engineering Practice

### **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 phenomenon and designing solutions.

Use tools and materials provided to design and build a device that solves a specific problem or a solution to a specific problem. (K-PS3-2)

## 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

### **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

### 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

### Patterns

Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence. (K-ESS2-1)

## Crosscutting Concept

### Cause and Effect

Events have causes that generate observable patterns. (K-ESS3-2), (K-PS3-1), (K-PS3-2)

## Crosscutting Concept

### Cause and Effect

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

### Crosscutting Concept

#### **Cause and Effect**

Events have causes that generate observable patterns. (K-ESS3-2)

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### Connection to Nature of Science

#### **Science Knowledge Is Based on Empirical Evidence**

Scientists look for patterns and order when making observations about the world. (K-ESS2-1)

### Connection to Nature of Science

#### **Scientific Investigations Use a Variety of Methods**

Scientists use different ways to study the world. (K-PS3-1)

### 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)

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## Common Core State Standards for ELA/Literacy

### **Card Type name**

### **RL.K.1 - Key Ideas and Details**

With prompting and support, ask and answer questions about key details in a text. (K-ESS3-2)

## 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-ESS3-2)

## 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-ESS2-1), (K-PS3-1), (K-PS3-2)

## Common Core State Standards for Mathematics

### Counting & Cardinality

#### **K.CC - undefined**

Counting and Cardinality (K-ESS3-2)

**Common Core State Standards for Mathematics**

**Counting & Cardinality**

**K.CC.A - Know number names and the count sequence.**

Know number names and the count sequence. (K-ESS2-1)

**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-ESS2-1)

**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-PS3-1), (K-PS3-2)

**Common Core State Standards for Mathematics**

**Measurement & Data**

**K.MD.B.3 - Classify objects and count the number of objects in each category.**

Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (K-ESS2-1)

**Common Core State Standards for Mathematics**

**Mathematical Practices**

**MP.2 - Reason abstractly and quantitatively**

Reason abstractly and quantitatively. (K-ESS2-1)

**Common Core State Standards for Mathematics**

**Mathematical Practices**

**MP.4 - Model with mathematics**

Model with mathematics. (K-ESS2-1), (K-ESS3-2)