

Kentucky Science

# Grade K

Adopted 2022

## Kindergarten

### Physical Science

- 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. **K-PS2-1**
- K-SEPS2-1.** Planning and Carrying Out Investigations - With guidance, plan and conduct an investigation in collaboration with peers. **K-SEPS2-1**
- A.** Forces and Motion - Pushes and pulls can have different strengths and directions. Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. **K-DCI.PS2.A**
- B.** Types of Interactions - When objects touch or collide, they push on one another and can change motion. **K-DCI.PS2.B**
- C.** Relationship Between Energy and Forces - A bigger push or pull makes things speed up or slow down more quickly. **K-DCI.PS3.C**
- PS2-1.** Cause and Effect - Simple tests can be designed to gather evidence to support or refute student ideas about causes. **K-CC.PS2-1**
- 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. **K-PS2-2**
- K-SEPS2-2.** Analyzing and Interpreting Data - Analyze data from tests of an object or tool to determine if it works as intended. **K-SEPS2-2**
- C.** Forces and Motion - Pushes and pulls can have different strengths. Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. **K-DCI.PS2.C**
- A.** Defining 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-DCI.ETS1.A**
- PS2-2.** Cause and Effect - Simple tests can be designed to gather evidence to support or refute student ideas about causes. **K-CC.PS2-2**
- K-PS3-1.** Make observations to determine the effect of sunlight on Earth's surface. **K-PS3-1**
- K-SEPS3-1.** Planning and Carrying Out Investigations - Make observations (firsthand or from media) to collect data that can be used to make comparisons. **K-SEPS3-1**
- B.** Conservation of Energy and Energy Transfer - Sunlight warms Earth's surface. **K-DCI.PS3.B**
- PS3-1.** Cause and Effect - Events have causes that generate observable patterns. **K-CC.PS3-1**
- K-PS3-2.** Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area. **K-PS3-2**
- K-SEPS3-2.** Constructing Explanations 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-SEPS3-2**

**PS3-2.** Cause and Effect - Events have causes that generate observable patterns. **K-CC.PS3-2**

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### **Life Science**

**K-LS1-1.** Use observations to describe patterns of what plants and animals (including humans) need to survive. **K-LS1-1**

**K-SEPLS1-1.** Analyzing and Interpreting Data - Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. **K-SEPLS1-1**

**C.** Organization for Matter and Energy Flow in Organisms - All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. **K-DCI.LS1.C**

**LS1-1.** Patterns - Patterns in the natural and human-designed world can be observed and used as evidence. **K-CC.LS1-1**

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## Earth and Space Sciences

- K-ESS2-1.** Use and share observations of local weather conditions to describe patterns over time. **K-ESS2-1**
- K-SEPESS2-1.** Analyzing and Interpreting Data - Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. **K-SEPESS2-1**
- 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-DCI.ESS2.D**
- ESS2-1.** Cause and Effect - Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. **K-CC.ESS2-1**
- K-ESS2-2.** Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. **K-ESS2-2**
- K-SEPESS2-2.** Engaging in Argument from Evidence - Construct an argument with evidence to support a claim. **K-SEPESS2-2**
- E.** Biogeology - Plants and animals can change their environment. **K-DCI.ESS2.E**
- 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-DCI.ESS3.C**
- ESS2-2.** Systems and System Models - Systems in the natural and designed world have parts that work together. **K-CC.ESS2-2**
- K-ESS3-1.** Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live. **K-ESS3-1**
- K-SEPESS3-1.** Developing and Using Models - Use a model to represent relationships in the natural world. **K-SEPESS3-1**
- A.** Natural Resources - Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. **K-DCI.ESS3.A**
- ESS3-1.** Systems and System Models - Systems in the natural and designed world have parts that work together. **K-CC.ESS3-1**
- K-ESS3-2.** Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather. **K-ESS3-2**
- K-SEPESS3-2a.** Asking Questions and Defining Problems - Ask questions based on observations to find more information about the designed world. **K-SEPESS3-2A**
- K-SEPESS3-2b.** Obtaining, Evaluating and Communicating Information - Read grade-appropriate texts and/or use media to obtain scientific information to describe patterns in the natural world. **K-SEPESS3-2B**

- 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-DCI.ESS3.B**
- B. Defining and Delimiting an Engineering Problem - Asking questions, making observations, and gathering information are helpful in thinking about problems. **K-DCI.ETS1.B**
- ESS3-2.** Cause and Effect - Events have causes that generate observable patterns. **K-CC.ESS3-2**
- 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. **K-ESS3-3**
- K-SEPESS3-3.** Obtaining, Evaluating, and Communicating Information - Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. **K-SEPESS3-3**
- D. 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-DCI.ESS3.D**
- C. 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-DCI.ETS1.C**
- ESS3-3.** Cause and Effect - Events have causes that generate observable patterns. **K-CC.ESS3-3**

## K-2 Engineering Design

- K-2-ETS1-1.** Ask questions, make observations, and gather information about a situation that 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-ETS1-1**
- K2-SEPETS1-1.** Asking Questions and Defining Problems - Ask questions based on observations to find more information about the natural and/or designed world(s). Define a simple problem that can be solved through the development of a new or improved object or tool. **K2-SEPETS1-1**
- A1.** 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. Asking questions, making observations, and gathering information are helpful in thinking about problems. Before beginning to design a solution, it is important to clearly understand the problem. **K2-DCI.ETS1.A1**
- 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-ETS1-2**
- K2-SEPETS1-2.** Developing and Using Models - Develop a simple model based on evidence to represent a proposed object or tool. **K2-SEPETS1-2**

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**B2. 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.** K2-DCI.ETS1.B2

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**ETS1-2. Structure and Function - The shape and stability of structures of natural and designed objects are related to their function(s).** K2-CC.ETS1-2

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**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.** K-2-ETS1-3

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**K2-SEPETS1-3. Analyzing and Interpreting Data - Analyze data from tests of an object or tool to determine if it works as intended.** K2-SEPETS1-3

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**C3. Optimizing the Design Solution - Because there is always more than one possible solution to a problem, it is useful to compare and test designs.** K2-CC.ETS1.C3