

Kindergarten

The performance expectations in kindergarten help students formulate answers to questions such as: “What happens if you push or pull an object harder?”, “Where do animals live and why do they live there?”, “What is the weather like today and how is it different from yesterday?”. Students are expected to develop an understanding of patterns and variations in local weather and the purposes of weather forecasting to prepare for, and respond to severe weather. Students are able to apply an understanding of the effects of different strengths or different directions of pushes and pulls on the motion of an object to analyze a design solution. Students are also expected to develop an understanding of what plants and animals (including humans) need to survive and the relationship between their needs and where they live. In the kindergarten performance expectations, students are expected to demonstrate grade-appropriate proficiency in asking questions, developing and using models, planning and carrying out investigations, analyzing and interpreting data, designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate understanding of the core ideas.

K-PS2-1 Motion and Stability: Forces and Interactions
Disciplinary Core Ideas
PS2.A: <u>Forces and Motion</u> <ul style="list-style-type: none">• 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.
PS2.B: <u>Types of Interactions</u> <ul style="list-style-type: none">• When objects touch or collide, they push on one another and can change motion.
PS3.C: <u>Relationship between Energy and Forces</u> <ul style="list-style-type: none">• A bigger push or pull makes things speed up or slow down more quickly.
ETS1.A: <u>Defining engineering problems</u> <ul style="list-style-type: none">• 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.
Performance Expectations: K-PS-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-PS2-2. 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-PS3 Energy
Disciplinary Core Ideas
PS3.B: Conservation of Energy and Energy Transfer <ul style="list-style-type: none">• Sunlight warms the Earth’s surface.

Performance Expectations:

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

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-LS1 From Molecules to Organisms: Structures and Processes

Disciplinary Core Ideas

LS1.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.

Performance Expectations:

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

K-ESS2 Earth's Systems

Disciplinary Core Ideas

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.

ESS2.E: Biogeology

- Plants and animals can change their environment.

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.

Performance Expectations:

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

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-ESS3 Earth and Human Activity

Disciplinary Core Ideas

ESS3.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.
ESS3.B: Natural Hazards <ul style="list-style-type: none"> 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.
ESS3.C: Human Impacts on Earth Systems <ul style="list-style-type: none"> Things that people do t 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.
ETS1.A: Defining and Delimiting an Engineering Problem <ul style="list-style-type: none"> Asking questions, making observations, and gathering information are helpful in thinking about problems.
ETS1. B: Developing Possible Solutions <ul style="list-style-type: none"> Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem’s solution to other people.
<u>Performance Expectations</u> 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-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather. K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air/or other living things in the local environment.

K-2-ETS1 Engineering Design
Disciplinary Code Ideas
ETS1.A: Defining and Delimiting Engineering Problems <ul style="list-style-type: none"> 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.
ETS1.B: Developing Possible solutions <ul style="list-style-type: none"> Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem’s solution to other people.
ETS1.C: Optimizing the Design Solution <ul style="list-style-type: none"> Because there is always more than one possible solution to a problem, it is useful to compare and test designs.

Performance Expectations

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.