Kindergarten Science Standards

Domain: Forces and Interactions: Pushes and Pulls			
Code:	**Strand:**	**Rating**	**Completed**
K.PS1	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.]	Priority	
K.PS2.DPO.1	Demonstrate the various ways that objects can move (e.g. straight line, zigzag, back and-forth, round-and-round, fast, slow. Formerly 1.S5.C2.DPO1	Supporting	
K.PS2	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.	Priority	

Catholic Identity

- Share materials and work together in small groups, listen to the ideas of others. Show respectful interaction.
- Use simple tools to make tasks easier. Use God given intellect to approach the tasks.

Science and Engineering Practices

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)

Disciplinary Ideas

PS2.A: Forces and Motion

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

PS2.B: Types of Interactions

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

PS3.C: Relationship Between Energy and Forces

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

ETS1.A: Defining Engineering Problems

A situation that people want to change or create can be approached as a problem to be solved

	- *Connections to the Nature of Science* **Scientific Investigations Use a Variety of Methods** Scientists use different ways to study the world. (K.PS2.1)	through engineering. Such problems may have many acceptable solutions. (secondary to K.PS2.2)

Domain: Interdependent Relationships in Ecosystems: Animals, Plants, and their Environment			
Code:	**Strand:**	**Rating**	**Completed**
K.LS1	Use observations to describe patterns of what plants and animals (including humans) need to survive. [Clarification Statement: Examples of patterns could include that animals need to take in food but plants do not; the different kinds of food needed by different types of animals; the requirement of plants to have light; and, that all living things need water.]	Priority	
K.LS1. DPO1	Identify plants and animals that exist in the local environment. Formerly 1.S4.C3.DPO1	Supporting	
K.LS2	Compare habitats (e.g. desert, forest, prairie, water underground) in which plants and animals live. Formerly 1.S4.C3.DPO2.	Supporting	
K.ESS1	Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. [Clarification Statement: Examples of plants and animals changing their environment could include a squirrel digs in the ground to hide its food and tree roots can break concrete.]	Priority	
K.ESS1.DPO1	Describe how plants and animals within a habitat are dependent on each other. Formerly 1.S4.C3. DPO3.	Supporting	
K.ESS2	Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live. [Examples of relationships could include that deer eat buds and leaves, therefore, they usually live in forested areas; and, grasses need sunlight so they often grow in meadows. Plants, animals, and their surroundings make up a system.]	Priority	
K.ESS3 DPO1	Know that animals require air, water, food, and shelter; plants require air, water, nutrients, and light. Formerly 1.S4.C3.DPO4.	Priority	
K.ESS3.1	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.]	Supporting	
K.ESS4.DPO2	Identify ways to conserve natural resources (e.g. reduce, reuse, recycle, find alternatives. Formerly 1.S6.C1.DPO5.	Priority	

Catholic Identity

- Share materials and work together in small groups, listen to the ideas of others. Be respectful. Treat others as you would like to be treated.
- Share Biblical stories related to weather and climate: creation story or Noah. Consider what it would be like to spend 40 days out in the desert.
- How do other life forms utilize the sun for sustenance?
- Relate various seasons to different cycles of the Church.
    - Why did God create the sun?
    - What do we use the sun for?
    - What other life forms, (e.g. plants and insects) need the sun?

Science and Engineering Practices

Developing and Using Models

Analyzing Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, storyboard) that represent concrete events or design solutions.

- Use a model to represent relationships in the natural world. (K.ESS3.1)

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.LS1.1)

Engaging in Argument from Evidence

- Engaging in argument from evidence in K– 2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s).
- Construct an argument with evidence to support a claim. (K.ESS2.2)

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)

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Connections to Nature of Science

Scientific Knowledge is Based on Empirical Evidence

Scientists look for patterns and order when making observations about the world. (K.LS1.1)

Disciplinary 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. (K.LS1.1)

ESS2.E: Biogeology

- Plants and animals can change their environment. (K.ESS2.2)

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. (K.ESS3.1)

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)

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.*(secondary to K.ESS3.3)*

Domain: Weather and Climate			
Code:	**Strand:**	**Rating**	**Completed**
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.]	Priority	
K.PS3.DPO1	Identify evidence that the Sun is the natural source of heat and light on the Earth (e.g., warm surfaces, shadows, shade). Formerly 1.S6.C2.DPO1	Priority	
K.PS3.2	Use tools and materials provided to design and build a structure that will reduce the warming effect of sunlight on Earth's surface.* [Clarification Statement: Examples of structures could include umbrellas, canopies, and tents that minimize the warming effect of the sun.]	Supporting	
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.]	Supporting	
K.ESS2.DPO1	Identify the following characteristics of seasonal weather patterns: temperature, type of precipitation, and wind. Formerly 1.S6.C3.DPO1.	Priority	
K.ESS2.DPO2	Analyze how the weather affects daily activities. Formerly 1.S6.C3.DPO2.	Supporting	
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.]	Supporting	
K.ESS3.DPO1	Know that short-term weather conditions (e.g. temperature, rain, snow) can change daily and weather patterns can change over the seasons. Formerly 1.S6.C3.DPO3.	Supporting	

Catholic Identity

- Share materials and work together in small groups, listen to the ideas of others. Show respect to others. Treat others as you want to be treated.
- Share Biblical stories related to weather and climate: creation story or Noah. Consider what it would be like to spend 40 days out in the desert.
- How do other life forms utilize the sun for sustenance?
- Relate various seasons to

Science and Engineering Practices

Asking Questions and Defining Problems

Asking questions and defining problems in grades K–2 builds on prior experiences and progresses to simple descriptive questions that can be tested.

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

Planning and Carrying Out Investigations

Disciplinary Ideas

PS3.B: Conservation of Energy and Energy Transfer

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

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)

ESS3.B: Natural Hazards

different cycles of the Church. ○ Why did God create the sun? ○ What do we use the sun for? ○ What other life forms, (e.g. plants and insects) need the sun?	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) **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) **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 phenomena 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) **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) - ***Connections to Nature of Science*** **Scientific Investigations Use a Variety of Methods** • Scientists use different ways to study the world. (K.PS3.1) **Science Knowledge is Based on Empirical Evidence** Scientists look for patterns and order when making observations about the world. (K.ESS2.1)	• 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) **ETS1.A: Defining and Delimiting an Engineering Problem** • Asking questions, making observations, and gathering information are helpful in thinking about problems. (secondary to K.ESS3.2)

Domain: K-2 Engineering Design			
Code:		**Rating**	**Completed**
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	Priority	
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.	Priority	
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.	Priority	

Catholic Identity

- Share materials and work together in small groups, listen to the ideas of others. Be respectful. Treat others as you would like to be treated.
- Use simple tools to make tasks easier. Use God given intellect to approach the tasks.
- Consider Biblical stories that highlight building, moving structures, etc., such as the building of the pyramids. (Consider: Can a mountain be moved? A building? A brick? Demonstrate.)
- Compare engineering design and God's intellectual design of life forms.
- Compare designs of cathedral structures and their components. Use blocks to show complexity of design elements.

Science and Engineering Practices

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 natural and/or designed world(s). (K- 2.ETS1.1)
- Define a simple problem that can be solved through the development of a new or improved object or tool. (K- 2.ETS1.1)

Developing and Using Models

Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.

- Develop a simple model based on evidence to represent a proposed object or tool. (K-2.ETS1.2)

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-2.ETS1.3)

Disciplinary Ideas

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. (K-2.ETS1.1)
- Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2.ETS1.1)
- Before beginning to design a solution, it is important to clearly understand the problem. (K-2.ETS1.1)

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-2.ETS1.2)

ETS1.C: Optimizing the Design Solution

- Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (K-2.ETS1.3)