Grade 1 Science Standards

Domain: Structure, Function, and Information Processing			
Code:	**Strand:**	**Rating**	**Completed**
1.LS1	Identify the following as characteristics of living things: Growth and Development, Reproduction, Response to Stimulus. Formerly 1.S4.C1.DPO1	Priority	
1.LS1.1	Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.* [Clarification Statement: Examples of human problems that can be solved by mimicking plant or animal solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and, detecting intruders by mimicking eyes and ears.	Supporting	
1.LS1.2	Compare the following observable features of living things: Movement (legs, wings), Protection (skin, feathers, tree bark), Respiration (lungs, gills), Support (plant stems, tree trunks). Formerly 1.S4.C1.DPO2.	Supporting	
1.LS1.3	Identify observable similarities and differences (e.g., number of legs, body, coverings, size) between/among different groups of animals. Formerly 1.S4.C1.DPO3	Supporting	
1.LS2	Understand the function and importance of the five senses. Formerly 1.S4.C1.DPO4	Priority	
1.LS2.1	Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.[Clarification Statement: Examples of patterns of behaviors could include the signals that offspring make (such as crying, cheeping, and other vocalizations) and the responses of the parents (such as feeding, comforting, and protecting the offspring).]	Supporting	
1.LS3	Identify stages of human life (e.g., infancy, adolescence, adult). Formerly 1.S4.C2.DPO1.	Priority	
1.LS3.1	Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents. [Clarification Statement: Examples of patterns could include features plants or animals share. Examples of observations could include leaves from the same kind of plant are the same shape but can differ in size; and, a particular breed of dog looks like its parents but is not exactly the same.] [Assessment Boundary: Assessment does not include inheritance or animals that undergo metamorphosis or hybrids.]	Supporting	
1.LS4	Identify similarities and differences between animals and their parents. Formerly 1.S4.C2.DPO2.	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.
- Understand that God created man in his own image.
- Reference Genesis. Identify aspects of the creation story and how all living things came to be.
- Use the five senses to appreciate skin, fur, feathers, etc. in understanding the creation story.
- Consider "creating" animals from materials and the care that goes into forming a creation. Consider how a creator cares for a creation and keeps it safe?

Science and Engineering Practices

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.

- Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (1.LS3.1)
- Use materials to design a device that solves a specific problem or a solution to a specific problem. (1.LS1. 1)

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 use media to obtain scientific information to determine patterns in the natural world. (1.LS1.2)

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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. (1.LS1.2)

Disciplinary Ideas

LS1.A: Structure and Function

- All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1.LS1.1)

LS1.B: Growth and Development of Organisms

- Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1.LS1.2)

LS1.D: Information Processing

- Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. (1.LS1.1)

LS3.A: Inheritance of Traits

- Young animals are very much, but not exactly like, their parents. Plants also are very much, but not exactly, like their parents. (1.LS3.1)

LS3.B: Variation of Traits

- Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. (1.LS3.1)

Domain: Waves: Light and Sound			
Code:		**Rating**	**Completed**
1.PS 1	Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. [Clarification Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.]	Priority	
1.PS 1.2	Demonstrate that vibrating objects produce sound. Formerly 3.S5.C3.DPO3	Supporting	
1.PS 2	Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated. [Clarification Statement: Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a cave explorer with a flashlight. Illumination could be from an external light source or by an object giving off its own light.]	Priority	
1PS 3	Describe how light behaves on striking objects that are: Transparent (clear plastic), Translucent (waxed paper), Opaque (cardboard). Formerly 3.S5.C3.DPO2	Priority	
1.PS 3.1	Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light. [Clarification Statement: Examples of materials could include those that are transparent (such as clear plastic), translucent (such as wax paper), opaque (such as cardboard), and reflective (such as a mirror).] [Assessment Boundary: Assessment does not include the speed of light.]	Supporting	
1.PS3.2	Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.* [Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string "telephones," and a pattern of drum beats.] [Assessment Boundary: Assessment does not include technological details for how communication devices work.]	Supporting	

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

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.

Disciplinary Ideas

PS4.A: Wave Properties

- Sound can make matter vibrate, and vibrating matter can make sound. (1.PS4.1)

PS4.B: Electromagnetic Radiation

- Objects can be seen if light is available to illuminate them or if they give off their own light. (1.PS4.2)

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.	• Plan and conduct investigations collaboratively to produce evidence to answer a question. (1.PS4.1),(1.PS4.3) **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. • Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (1.PS4.2) • Use tools and materials provided to design a device that solves a specific problem. (1.PS4.4) - ***Connections to Nature of Science*** **Scientific Investigations Use a Variety of Methods** • Science investigations begin with a question. (1.PS4.1) • Scientists use different ways to study the world. (1.PS4.1)	• Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam. (Boundary: The idea that light travels from place to place is developed through experiences with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1.PS4.3) **PS4.C: Information Technologies and Instrumentation** People also use a variety of devices to communicate (send and receive information) over long distances. (1.PS4.4)

Domain: Space Systems: Patterns and Cycles			
Code:		**Rating**	**Completed**
1.ESS1	Use observations of the sun, moon, and stars to describe patterns that can be predicted. [Clarification Statement: Examples of patterns could include that the sun and moon appear to rise in one part of the sky, move across the sky, and set; and stars other than our sun are visible at night but not during the day.] [Assessment Boundary: Assessment of star patterns is limited to stars being seen at night and not during the day.]	Priority	
1.ESS1.1	Compare celestial objects (e.g., Sun, Moon, stars) and transient objects in the sky (e.g., clouds, birds, airplanes, contrails). Formerly 1.S6.C2.DPO2	Supporting	
1.ESS2	Describe observable changes that occur in the sky. (e.g., clouds forming and moving, the position of the Moon. Formerly 1.S6.C2.DPO3	Priority	
1.ESS3	Make observations at different times of year to relate the amount of daylight to the time of year. [Clarification Statement: Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall.] [Assessment Boundary: Assessment is limited to relative amounts of daylight, not quantifying the hours or time of daylight.]	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.
- Reference creation of the sun and moon in Genesis.
- Reference the star of Bethlehem as the heavenly body that brought the wise men to Jesus and the stars as the guide for Columbus crossing the ocean.
- Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations using God's gifts (e.g., Sally Ride [scientist], Neil Armstrong [astronaut, engineer]. They were inspired by their intellect and drawn to the heavens out of curiosity.
- Introduce the term "Heavenly Bodies" and explain the phrase in relation to their place in the universe.

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.

- Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1.ESS1.2)

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. (1.ESS1.1)

Disciplinary Ideas

ESS1.A: The Universe and its Stars

- Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (1.ESS1.1)

ESS1.B: Earth and the Solar System

- Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1.ESS1.2)

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.	Supporting	
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.	Supporting	

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)