KINDERGARTEN - SECOND GRADE

SCIENCE STANDARDS GUIDANCE
WI Science Standards

Crosscutting Concepts	
Patterns	SCI.CC1.K-2 Students recognize that patterns in the natural and human-designed world can be observed, used to describe phenomena, and used as evidence.
Cause & Effect	SCI.CC2.K-2 Students learn that events have causes that generate observable patterns. They design simple tests to gather evidence to support or refute their own ideas about causes.
Scale, Proportion, and Quantity	SCI.CC3.K-2 Students use relative scales (e.g., bigger and smaller, hotter and colder, faster and slower) to describe objects. They use standard units to measure length.
Systems and System Models	SCI.CC4.K-2 Students understand objects and organisms can be described in terms of their parts and that systems in the natural and designed world have parts that work together.
Energy and Matter	SCI.CC5.K-2 Students observe objects may break into smaller pieces, be put together into larger pieces, or change shapes.
Structure and Function	SCI.CC6.K-2 Students observe the shape and stability of structures of natural and designed objects are related to their function(s).
Stability and Change	SCI.CC7.K-2 Students observe some things stay the same while other things change, and things may change slowly or rapidly.

Science and Engineering Practices	
Defining Problems	SCI.SEP1.A.K-2 Students ask simple descriptive questions that can be tested. This includes the following: Ask questions based on observations to find more information about the natural world. Ask or identify questions that can be answered by an investigation. SCI.SEP1.B.K-2 Students define simple problems that can be solved through the development of a new or improved object or tool.
Developing and Using Models	SCI.SEP2.K-2 Students use and develop models (i.e., diagrams, drawings, physical replicas, dioramas, dramatizations, or storyboards) that represent concrete events or design solutions. This includes the following: Distinguish between a model and the actual object, process, or events the model represents. Compare models to identify common features and differences. Develop or use models to represent amounts, relationships, relative scales (bigger, smaller), and patterns in the natural and designed world(s). Develop a simple model based on evidence to represent a proposed object or tool.
Planning and Conducting Investigations	SCI.SEP3.K-2 Students plan and carry out simple investigations, based on fair tests, which provide data to support explanations or design solutions. This includes the following: With guidance, plan and conduct an investigation in collaboration with peers (for K). Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. Evaluate different ways of observing and measuring a phenomenon to determine which way can answer the question being studied. SCI.SEP3.K-2 Make observations (firsthand or from media) and measurements to collect data that can be used to make comparisons. Make observations (firsthand or from media) and measurements of a proposed object or tool or solution to determine if it solves a problem or meets a goal.
Analyzing and Interpreting Data	SCI.SEP4.K-2 Students collect, record, and share observations. This includes the following: Record information (observations, thoughts, and ideas). Use and share pictures, drawings, or writings of observations. Use observations (firsthand or from media) to describe patterns or relationships in the natural and designed worlds in order to answer scientific questions and solve problems. Compare predictions (based on prior experiences) to what occurred (observable events). Analyze data from tests of an object or tool to determine if the object or tool works as intended.
Using Mathematics and Computational Thinking	SCI.SEP5.K-2 Students recognize that mathematics can be used to describe the natural and designed world. This includes the following: Use counting and numbers to identify and describe patterns in the natural and designed worlds. Describe, measure, or compare quantitative attributes of different objects and display the data using simple graphs. Use qualitative and/or quantitative data to compare two alternative solutions to a problem.

Constructing an Explanation & Designing Solutions	SCI.SEP6.A.K-2 Students use evidence and ideas in constructing evidence-based accounts of natural phenomena. This includes the following: Use information from observations (firsthand and from media) to construct an evidence-based account for natural phenomena.
	SCI.SEP6.B.K-2 Students use evidence and ideas in designing solutions. This includes the following: Use tools and materials to design and/or build a device that solves a specific problem or a solution to a specific problem. Generate and compare multiple solutions to a problem.
Arguing from Evidence	SCI.SEP7.K-2 Students compare ideas and representations about the natural and designed world. This includes the following: Identify arguments that are supported by evidence. Distinguish between explanations that account for all gathered evidence and those that do not. Analyze why some evidence is relevant to a scientific question and some is not. Distinguish between opinions and evidence in one's own explanations. Listen actively to arguments to indicate agreement or disagreement based on evidence, or to retell the main points of the argument. Construct an argument with evidence to support a claim. Make a claim about the effectiveness of an object, tool, or solution that is supported by relevant evidence.
Obtaining, Evaluating, and Communicating Information	SCI.SEP8.K-2 Students use observations and texts to communicate new information. This includes the following: Read developmentally appropriate texts or use media to obtain scientific and technical information. Use the information to determine patterns in or evidence about the natural and designed worlds. Describe how specific images (e.g., a diagram showing how a machine works) support a scientific or engineering idea. Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering scientific questions or supporting scientific claims. Communicate information or design ideas and solutions with others in oral or written forms. Use models, drawings, writing, or numbers that provide detail about scientific ideas, practices, or design ideas.
Disciplinary Core Ideas	
Structure and Processes	SCI.LS1.A.1 All organisms have external parts that they use to perform daily functions.
	SCI.LS1.B.1 Parents and offspring often engage in behaviors that help the offspring survive.
	SCI.LS1.C.K Animals obtain food they need from plants or other animals. Plants need water and light.
	SCI.LS1.D.1 Animals sense and communicate information and respond to inputs with behaviors that help them grow and survive.
Interactions, Energy, and Dynamics Within Ecosystems	SCI.LS2.A.2 Plants depend on water and light to grow. Plants depend on animals for pollination or to move their seeds around.
	[redacted]
Heredity	SCI.LS3.A.1 Young organisms are very much, but not exactly, like their parents, and also resemble other organisms of the same kind.
	SCI.LS3.B.1 Individuals of the same kind of plant or animal are recognizable as similar, but can also vary in many ways.
Biological Evolution	[redacted]
	SCI.LS1.D.2 There are many different kinds of living things in any area, and they exist in different places on land and in water.

Matter and Its Interactions	SCI.PS1.A.2 Matter exists as different substances that have different observable properties. Different properties are suited to different purposes. Objects can be built up from smaller parts.
	SCI.PS1.B.2 Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not.
	[redacted]
Forces, Interactions, Motion, and Stability	SCI.PS2.A.K Pushes and pulls can have different strengths and directions, and can change the speed or direction of an object's motion, or start or stop it. A bigger push or pull makes things speed up or slow down more quickly.
	SCI.PS2.B.K When objects touch or collide, they push on one another and can result in a change of motion.
Energy	[redacted]
	SCI.PS3.C.K Bigger pushes and pulls cause bigger changes in an object's motion or shape.
	SCI.PS3.D.K Sunlight warms Earth's surface.
Waves and Their Applications in Technologies for Information Transfer	SCI.PS4.A.1 Sound can make matter vibrate, and vibrating matter can make sound.
	SCI.PS4.B.1 Objects can be seen only when light is available to illuminate them.
	SCI.PS4.C.1 People use devices to send and receive information.
Earth's Place in the Universe	SCI.ESS1.A.1 Patterns of movement of the sun, moon, and stars, as seen from Earth, can be observed, described, and predicted.
	SCI.ESS1.B.1 Seasonal patterns of sunrise and sunset can be observed, described, and predicted.
	SCI.ESS1.C.2 Some events on Earth occur very quickly; others can occur very slowly.
Earth's Systems	SCI.ESS2.A.2 Wind and water change the shape of the land.
	SCI.ESS2.B.2 Maps show where things are located. One can map the shapes and kinds of land and water in any area.
	SCI.ESS2.C.2 Water is found in many types of places and in different forms on Earth.
	SCI.ESS2.D.K Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region and time. People record weather patterns over time.
	SCI.ESS2.E.K Plants and animals can change their local environment.
Earth and Human Activity	SCI.ESS3.A.K 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.
	SCI.ESS3.B.K In a region, some kinds of severe weather are more likely than others. Forecasts allow communities to prepare for severe weather.
	SCI.ESS3.C.K Things people do can affect the environment but they can make choices to reduce their impacts.
	[redacted]
Engineering, Technology, and the Application of Science - Engineering Design	SCI.ETS1.A.K-2 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.
	SCI.ETS1.B.K-2 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
	SCI.ETS1.C.2 Because there is more than one possible solution to a problem, it is useful to compare and test designs.
Engineering, Technology, and the Application of Science - Links Among Engineering, Technology, Science, and Society	SCI.ETS2.A.K-2 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.
	SCI.ETS2.B.K-2 Every human-made product is designed by applying some knowledge of the natural world and is built by using natural materials. Taking natural materials to make things impacts the environment.

Engineering, Technology, and the Application of Science - Nature of Science and Engineering	SCI.ETS3.A.K-2 People of diverse backgrounds can become scientists and engineers. People have practiced science and engineering for a long time. Creativity and imagination are important to science and engineering.
	SCI.ETS3.B.K-2 Scientists use evidence to explain the natural world. Science assumes natural events happen today as they happened in the past. Engineers solve problems to meet the needs of people and communities.
	SCI.ETS3.C.K-2 Science and engineers use many approaches to answer questions about the natural world and solve problems. Scientific explanations are strengthened by being supported with evidence. An engineering problem can have many solutions. The strength of a solution depends on how well it solves the problem.