Vocabulary

Construct	Properties	Flexibility	Assemble
Observe	Analyze	Rigid	Disassemble
Investigation	Task	Bendable	Reassemble
Properties	Texture	Temperature	Evidence
Classify	Hardness	Solid	Reversible
Argument	Strength	Liquid	Irreversible
Physical	Absorbent	Gas	

Crosscutting Concepts

2-PS1-1

Patterns

Patterns in the natural and human designed world can be observed.

2-PS1-2

Cause and Effect

Simple tests can be designed to gather evidence to support or refute student ideas about causes.

2-PS1-3

Energy and Matter

Objects may break into smaller pieces and be put together into larger pieces, or change shapes.

2-PS1-4

Cause and Effect

Events have causes that generate observable patterns.

Resources *

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Second Grade • First Quarter Pacing Guide

Science

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Grade 2 Science First Quarter

Matter and Its Interactions 2-PS1-1	Matter and Its Interactions 2-PS1-2	Matter and Its Interactions 2-PS1-3	Matter and Its Interactions 2-PS1-4
I CAN STATEMENT			
☐ **I CAN** describe objects based on their physical characteristics. ☐ **I CAN** and conduct an investigation to describe and classify different kinds of materials by their observable properties.	☐ **I CAN** decide which object would have the best properties for a particular task. ☐ **I CAN** analyze and test different materials to determine which materials have the properties that are best suited for an intended purpose.	☐ **I CAN** disassemble an object made of small pieces and reassemble it into something new. ☐ **I CAN** make observations how an object made of a small set of pieces can be disassembled and made into a new object.	☐ **I CAN** construct an argument with evidence that some changes caused by heating can be reversed and some cannot. ☐ **I CAN** construct an argument with evidence that some changes caused by cooling can be reversed and some cannot ☐ **I CAN** observe patterns that generate change.
Core Idea			
Structure and Properties of Matter Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties.	**Structure and Properties of Matter** Different properties are suited to different purposes.	**Structure and Properties of Matter** A great variety of objects can be built up from a small set of pieces.	**Chemical Reactions** Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not.
Standard			
Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. *Clarification Statement: Observations could include color, texture, hardness, and flexibility. Patterns could include the similar properties that different materials share.*	**Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.** *Clarification Statement: Examples of properties could include, strength, flexibility, hardness, texture, and absorbency.*	**Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.** *Clarification Statement: Examples of pieces could include blocks, building bricks, or other assorted small objects.*	**Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.** *Clarification Statement: Examples of reversible changes could include materials such as water and butter at different temperatures. Examples of irreversible changes could include cooking an egg, freezing a plant leaf, and heating paper.*
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 provides data to support explanations or design solutions. ► Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.	**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.	**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.	**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.

Vocabulary

Evidence	Plate tectonics
Natural	Map
Rapid	Model
Processes	Diagram
Solution	Pattern
Erosion	Compare
Prevent	

Crosscutting Concepts

2-ESS1-1

Stability and Change:

Things may change slowly or rapidly.

2-ESS2-1

Stability and Change:

Things may change slowly or rapidly.

2-ESS2-2

Patterns

Patterns in the natural world can be observed.

2-ESS2-3

Patterns:

Patterns in the natural world can be observed.

Resources *

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Second Grade • Second Quarter

Pacing Guide

Science

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Grade 2 Science Second Quarter

Earth's Place in the Universe 2-ESS1-1	Earth's Systems 2-ESS2-1	Earth's Systems 2-ESS2-2	Earth's Systems 2-ESS2-3
I CAN STATEMENT			
☐ **I CAN** research how some of Earth's natural events happen quickly, and some slowly. ☐ **I CAN** use information to provide evidence that Earth events can occur quickly or slowly. ☐ **I CAN** observe changes in Earth's physical events.	☐ **I CAN** compare solutions for wind and water erosion. ☐ **I CAN** compare solutions designed to slow or prevent wind or water from changing the shape of the land on the natural world.	☐ **I CAN** create a model of the land and water in a local or regional area. ☐ **I CAN** develop a model to represent the shapes and kinds of land and bodies of water in a Michigan area.	☐ **I CAN** find information on the location and types of water around the world. ☐ **I CAN** find information on the location and types of water in Michigan. ☐ **I CAN** obtain information to identify where water is found and that it can be solid or liquid.
Core Idea			
The History of Planet Earth Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe.	**Earth Materials and Systems** Wind and water can change the shape of the land.	**Plate Tectonics and Large-Scale System Interactions** Maps show where things are located. One can map the shapes and kinds of land and water in any area.	**The Roles of Water in Earth's Surface Processes** Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.
Standard			
Use information from several sources to provide evidence that Earth events can occur quickly or slowly. *Clarification Statement: Examples of events and timescales could include volcanic explosions and earthquakes, which happen quickly and erosion of rocks, which occurs slowly.*	**Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.** *Clarification Statement: Examples of solutions could include different designs of dikes and windbreaks to hold back wind and water, and different designs for using shrubs, grass, and trees to hold back the land.*	**Develop a model to represent the shapes and kinds of land and bodies of water in an area.** ****Develop a model to represent the state of MI and the Great Lakes or a more local land area and water body.**	**Obtain information to identify where water is found on Earth and that it can be solid or liquid.** ****Obtain information to identify where fresh water is found on Earth, including the Great Lakes and Great Lakes Basin.**
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 from several sources to construct an evidence-based account for natural phenomena.	**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. ► Compare multiple solutions to a problem.	**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 model to represent patterns in the natural world.	**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. ► 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 a scientific question.

Vocabulary

Observation

Illustrate

Function

Physical model

Plan

Conduct

Investigation

Crosscutting Concepts

2-ETS1-2

Structure and Function

The shape and stability of structures of natural and designed objects are related to their function(s).

Resources *

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Second Grade • Third Quarter

Pacing Guide

Science

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Grade 2 Science Third Quarter

Engineering Design 2-ETS1-1	Engineering Design 2-ETS1-2	Engineering Design 2-ETS1-3	Notes
I CAN STATEMENT			
☐ **I CAN** build or improve a tool to solve a problem by asking questions, making observations and gathering information.	☐ **I CAN** draw a picture of a tool that will illustrate how its shape will solve a problem.	☐ **I CAN** analyze test data to compare two tools and tell which one will better solve a problem.	
Core Idea			
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.	**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.	**Optimizing the Design Solution** Because there is always more than one possible solution to a problem, it is useful to compare and test designs.	
Standard			
Ask questions, make oberservations, 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.	**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.**	**Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.**	
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). ► Define a simple problem that can be solved through the development of a new or improved object or tool.	**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.	**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.	

Vocabulary

Diversity

Habitat

Living

Nonliving

Categorize

Disperse

Mimic

Pollination

Crosscutting Concepts

2-LS4-1

NA

2LS2-1

Cause and Effect

Events have causes that generate observable patterns.

2-LS2-2

Structure and Function

The shape and stability of structures of natural and designed objects are related to their function(s).

Resources *

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Second Grade• Fourth Quarter

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Grade 2 Science Fourth Quarter

Biological Evolution 2-LS4-1	Ecosystems 2-LS2-1	Ecosystems 2-LS2-2	Notes
I CAN STATEMENT			
☐ **I CAN** compare the many different types of plants and animals that live in different habitats. ☐ **I CAN** make observations of plants and animals to compare the diversity of life in different habitats.	☐ **I CAN** investigate if plants need water and sunlight to grow. ☐ **I CAN** plan and conduct an investigation to determine if plants need sunlight and water to grow.	☐ **I CAN** create a model that spreads seeds or pollen just like animals do. ☐ **I CAN** develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.	
Core Idea			
Biodiversity and Humans There are many different kinds of living things in any area, and they exist in different places on land and in water.	**Interdependent Relationships in Ecosystems** Plants depend on water and light to grow.	**Interdependent Relationships in Ecosystems** Plants depend on animals for pollination or to move their seeds around.	
Standard			
Make observations of plants and animals to compare the diversity of life in different habitats. *Clarification Statement: Emphasis is on the diversity of living things in each of a variety of different habitats.*	**Plan and conduct an investigation to determine if plants need sunlight and water to grow.**	**Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.**	
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 which can be used to make comparisons.	**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. ► Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.	**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.	