Unit: Earth	Grade Level: 2	Time Frame: September – December

Standards:
Science:
2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.
2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land
2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area.
2-ESS2-3. Obtain information to identify where water is found on Earth and that it can be solid or liquid.

Common Core State Standards Connections:
ELA:
RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).
W.2.8 Recall information from experiences or gather information from provided sources to answer a question
SL.2.2 Recount or describe key ideas or details from a text read aloud or information presented orally or through other media
RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
RI.2.9 Compare and contrast the most important points presented by two texts on the same topic.
W.2.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.
Math:
MP.2 Reason abstractly and quantitatively
MP.4 Model with mathematics.
MP.5 Use appropriate tools strategically.
2.NBT.A.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
2.MD.B.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.

Essential Questions:
- Where is water found on Earth?
- What are the characteristics of bodies of water?
- How can you use a map to find a location?
- Why do some Earth events happen very slowly or quickly?
- What are different solutions designed to prevent wind or water changing the shape of land?
- How can a map represent the shape of land and kind of water in a specified area?
- Where and why is water on Earth found in both solid and liquid form?

Unit Goals: Students will learn how does land change and what are some things that cause it to change, What are the different kinds of land and bodies of water?

Skills:
Students will be able to…
● Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.
● Analyze data from tests of an object or tool to determine if it works as intended.
● Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.
● Construct an argument with evidence to support a claim.
● Search for cause and effect relationships to explain natural events.

Vocabulary:

weathering	dike	compass rose
erosion	hills	lake
earthquake	plains	pond
landslide	mountains	river
hurricane	map	ocean
flood	map title	liquid
windbreak	map key	solid
deserts		

Demonstration of Learning/Assessments: 1. Students will be able to ask and answer such questions as who, what, where, when, why, and how the wind and water can change the shape of the land. 2. Students will describe the connection between information and models to identify and represent the shapes and kinds of land and bodies of water in an area and where water is found on Earth. 3. Students will participate in shared research and writing projects on what are the different solutions designed to prevent wind or water changing the shape of land. 4. Students will compare and contrast how the Earth changes.	**21st Century Themes:** **Environmental Literacy:** Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air and water **Creativity and Innovation:** • Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts • Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work **Flexibility and Adaptability:** Incorporate feedback effectively **Social and Cross-cultural skills:** Know when it is appropriate to listen and when to speak
Resources: Additional/ Supplementary: **Books:** Water Can Be by Salas, Laura Purdie Landforms by Rice, William B. Weathering and Erosion by Maloof, Torrey **Online tools:** Exploring Landforms and Bodies of Water for Kids - FreeSchool ...	**Performance Tasks (Labs)** ***Listed below are the suggested activities that can be used to perform the labs. Teachers will have the autonomy to change the materials to make the proper adjustments needed in order to perform lab task.*** 1. Students will build a model of a stream to observe what happens to Earth's surface during erosion caused by water. 2. Students will build a model to observe what happens to Earth's surface during a flood. 3. Students will design, test, and redesign possible solutions that will prevent water from changing land. Students will then communicate their findings to others. 4. Students will use a variety of resources to obtain information about bodies of water near where they live and will make posters to share this information with their classmates. 5. Students will make a map of their school playground, including a map title, a map key, and a compass rose. Students will compare their maps with their classmates' maps and look for patterns.

Unit: Matter and its Interactions	Grade Level: 2	Time Frame: January- March

Standards: Science:
2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose
2-PS1-3. 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.
2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.
Common Core Standards Connections:
ELA:
RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (2-PS1-4)
RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-PS1-4)
RI.2.8 Describe how reasons support specific points the author makes in a text. (2-PS1-2),(2-PS1-4)
W.2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section. (2-PS1-4)
W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-PS1-1),(2-PS1- 2),(2-PS1-3)
W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-PS1-1),(2-PS1-2),(2-PS1-3)
Mathematics
MP.2 Reason abstractly and quantitatively. (2-PS1-2)
MP.4 Model with mathematics. (2-PS1-1),(2-PS1-2)
MP.5 Use appropriate tools strategically. (2-PS1-2)
2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (2-PS1-1),(2-PS1-2

Essential Questions:
- How can you describe and classify different kinds of materials?
- What properties of materials make them suitable for select functions?
- How can an object made of a small set of pieces be disassembled and made into a new object? How does heating and cooling a substance cause changes?
- What are properties of matter?
- What is the fastest way to change ice to water?
- How are all three states of matter alike and different?
- How does matter occupy space?
- How can matter undergo change?
- How can we use our five senses to identify the physical properties of matter (color, size, shape, weight, texture)?

Unit Goals: Students will learn how materials are similar and different from one another, and how do the properties of the materials relate to their use.

Skills:
Students will be able to…
● Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question
● Analyze data from tests of an object or tool to determine if it works as intended.
● Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.
● Construct an argument with evidence to support a claim.
● Search for cause and effect relationships to explain natural events.

Vocabulary:
evaporate gases
melts
liquid
water
vapor
matter
thermometer
solids
contract
expand
condensation
temperature
matter
property solid
liquid
melt
freeze
reversible
irreversible

Demonstration of Learning/Assessments:

1. Students will ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of how materials are classified and described.
2. Students will be able to describe the concepts of how an object made of a small set of pieces be disassembled and made into a new object. How does heating and cooling a substance cause changes?
3. Students will write an opinion piece in which they introduce how can we use our five senses to identify the physical properties of matter (color, size, shape, weight, texture), supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section.
4. Students will participate in shared research and writing projects (e.g. how are all 3 states of matter alike and different?)
5. Students will recall information from experiences or gather information from provided sources to answer essential questions.

21st Century Themes:

Global Awareness: Students will learn how people around the world have limited resources (materials, water)

Creativity and Innovation:

- Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts
- Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work

Flexibility and Adaptability: Incorporate feedback effectively

Social and Cross-cultural skills: Know when it is appropriate to listen and when to speak

Resources: Additional/ Supplementary

Online tools:

2nd Grade: States of Matter Jeopardy

Youtube.com: Science Videos for Kids: What is Matter?

Books:

- Change It!: Solids, Liquids, Gases and You by Adrienne Mason
- What Is the World Made Of? All About Solids, Liquids, and Gases by Kathleen Weidner Zoehfeld
- What Is a Solid? by Jennifer Boothroyd
- What Is a Liquid? by Jennifer Boothroyd
- What Is a Gas? by Jennifer Boothroyd
- Solids, Liquids, And Gases by Ginger Garrett
- Joe-Joe the Wizard Brews Up Solids, Liquids, and Gases by Eric Braun
- Mixing and Separating by Chris Oxlade.

Performance Tasks (Labs) ***Listed below are the suggested activities that can be used to perform the labs. Teachers will have the autonomy to change the materials to make the proper adjustments needed in order to perform lab task.***

1. Students will plan and carry out tests on each of several different materials to determine their suitability as a pillow filler (pillow case).
2. Students will design and implement a plan to find out how many objects they can build from the same set of pieces. They will record the objects they built and analyze the results.
3. Students will explore how cooling causes changes to different materials, such as a flower, an ice-cube tray, and orange juice. Students will identify patterns based on these events.
4. Students will make a claim about the reversibility or irreversibility of changes caused by cooking in a microwave. They will support their claim with evidence from their observations during the investigation.

<table>
<tr><th>Unit: Ecosystem: Interactions, Energy, and Dynamics</th><th>Grade Level: 2</th><th>Time Frame: April- June</th></tr>
<tr><td colspan="3">Standards:
Science:
2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.
2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plant
Common Core State Standards Connections:
ELA:
W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (
W.2.8 Recall information from experiences or gather information from provided sources to answer a question.
SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.
Math:
MP.2 Reason abstractly and quantitatively
MP.4 Model with mathematics
MP.5 Use appropriate tools strategically
2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems.</td></tr>
<tr><td>Essential Questions:
1. Do plants and animals need sunlight and water to grow?
2. What are the steps that occur when animals help disperse seeds or aid in pollinating plants?
3. What observations can be made about the diversity of living things in different habitats?</td><td colspan="2">Unit Goals: Students will be expected to observe what plants need to grow and identify how many types of living things live in a place.</td></tr>
<tr><td>Skills:
Students will be able to…
• Develop a simple model based on evidence to represent a proposed object or tool.
• Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.
• Make observations (firsthand or from media) to collect data which can be used to make comparisons.
• Look for patterns and order when making observations about the world.</td><td>Vocabulary:
Water
Sunlight
Space
Soil
Air
Nutrients</td><td>Roots
leaves
stem
nutrient
pollen
habitat</td></tr>
<tr><td>Demonstration of Learning/Assessments:
1. Students will participate in a shared research and writing projects to research what are the steps that occur when animals help disperse seeds or aid in pollinating plants
2. Students will create audio recordings of stories or poems; add drawings or other visual displays to stories to create a story about the diversity of a living thing in a different habitats</td><td colspan="2">21st Century Themes:
Global Awareness: Students will understand how diverse cultures, religions and lifestyles use animals and plants for different reasons
Health Literacy: Students will use available information to make appropriate health-related decisions
Creativity and Innovation:
• Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts
• Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work
Flexibility and Adaptability: Incorporate feedback effectively
Social and Cross-cultural skills: Know when it is appropriate to listen and when to speak</td></tr>
<tr><td>Resources: Additional/ Supplementary Resources:
Online tools:
Youtube.com
• What is an Ecosystem?
• Second Grade - Interdependent Relationships in Ecosystems
Books:
Carle, E. (2009). The tiny seed.
Rockwell, A. (1999). One bean
Pallotta, J. (2010). Who will plant a tree?
Lawrence, E. (2012). From bird poop to wind: How seeds get around</td><td colspan="2">Performance Tasks (Labs) Listed below are the suggested activities that can be used to perform the labs. Teachers will have the autonomy to change the materials to make the proper adjustments needed in order to perform lab task.
1. Students will plan and conduct an investigation to see how water moves through plants. They will use data to serve as evidence to answer their question.
2. Students will build a model of a tool with a structure that supports its ability to pick up and move seeds similar to how animals move seeds in nature.
3. Students will plan and build models of habitats found in a tide pool. Children observe their habitats and identify patterns in their observations.
4.Students will make a plan to research and compare plants and animals that live in a habitat found in the savanna and then display their results in an exhibit</td></tr>
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