Unit 2 Weather Forecasting

Content Area: **Science**
Course(s): **Science K**
Time Period: **Marking Period 2**
Length: **MP 2**
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Open Sci Ed

Lesson 1: Anchoring Phenomenon- What is it like outside today and how did we prepare for it?

- Phenomenon- There are different weather conditions that we can notice and ask questions about.
    - Make observations of how it looks and feels outside.
    - Share our observations and ask questions on our Notice and Wonder chart.
    - Consider how we got ready to go outside so we could be comfortable.
    - Read an infographic of question words.

Lesson 2: Investigation- How can we find out and prepare for how warm it is outside?

- Phenomenon-Temperature can be different inside and outside; it can be measured with a thermometer.
    - Revisit our questions and think about how we know how warm something is.
    - Read a book about how meteorologists measure temperature.
    - Use thermometers to investigate temperature inside and outside.
    - Identify and use patterns in our data to compare inside and outside temperatures and use these to prepare to go outside.

Lesson 3: Investigation- How can we find out and prepare for how sunny it is outside?

- Phenomenon- Preparations for the weather can change depending on how sunny it is.
    - Make and share observations about how cloudy or sunny it is.
    - Identify and record patterns in our observations
    - Read a book about different types of weather conditions.
    - Discuss ways to prepare to go outside when it is sunny.

Lesson 4: Investigation- How can we find out and prepare for how rainy it is outside?

- Phenomenon- We can measure the rain that our location gets using a rain gauge.
    - Build a rain gauge and use it to make observations about how rainy it is.
    - Observe temperature and cloudiness, then identify and record patterns in our observations.
    - Discuss ways to prepare for going outside when it is rainy (and/or snowy).

Lesson 5: Investigation- How can we find out and prepare for how windy it is outside?

- Phenomenon- Wind is moving air; it can be measured with a wind gauge.
    - Build and use wind gauges to measure wind.
    - Observe other weather conditions, then identify and record patterns in our observations.
    - Discuss how we can prepare to go outside in different windy conditions.

Lesson 6: Putting The Pieces Together- How can we use patterns to know what the weather is usually like?

- Phenomenon- We can see patterns in our local weather over time.

- Make picture graphs for each type of weather observed.
- Construct a definition of weather.
- Read a. book about how students prepare for weather conditions in other communities.

Lesson 7: Investigation- How can we find out about weather in the future?

- Phenomenon- Meteorologists make weather forecasts using patterns.
  - Draw and write to share what we figured out about our usual weather and how to prepare for it.
  - Begin planning Community Service Announcements to communicate about our weather and how to prepare for it.
  - Use a book to obtain information about how meteorologists make and communicate weather forecasts.

Lesson 8: Investigation- What makes the weather severe?

- Phenomenon- Severe weather is extreme and unsafe.
  - Ask questions about weather conditions that are different from our usual weather.
  - Draw and write about local severe weather to add to our Community Service Announcement.
  - Read a book to figure out about types of severe (unsafe) weather that could happen in our area.

Lesson 9: Investigation- How can we prepare for severe weather?

- Phenomenon- We can prepare for and respond to severe weather events safely.
  - Use a card sort to organize ideas and notice patterns in how we prepare for severe weather.
  - Draw and write our ideas for staying safe during severe weather.
  - Prepare our CSA's, so we are ready to communicate how we can prepare for the weather (including severe weather).

Lesson 10: Putting Pieces Together- How can we communicate about preparing for the weather?

- Phenomenon- Weather-related information can be communicated through drawing, writing, speaking, and gesturing.
  - Review our book about how meteorologists communicate about the weather.
  - Co-create a CSA Communication Checklist, and use it when sharing our Community Service Announcements to invited guests.

Essential Questions

- How does the weather change so much each year?
- What do animals do at different times of the year?
- Which kinds of weather are bets for flying a kite?
- How can you get ready for a big storm?
- Have you ever watched a storm?
- How many different kinds of weather are there?

- How can we be prepared for the weather?

Big Ideas

In this unit, students gather evidence in order to identify daily and seasonal weather patterns. They use those patterns to explain mysteries like why you might lose your jacket during the day or why birds lay their eggs at certain times of the year. Students will also explore storms and severe weather. They obtain information from weather forecasts to prepare for storms and stay safe. They also practice describing the various characteristics of weather (wind, clouds, temperature, and precipitation) in order to make their own predictions about storms.

Cross-Curricular Integration

ELA Common Core Standards-

- CCSS.ELA-LITERACY.RI.K.1- With prompting and support, ask and answer questions about key details in a text.
- CCSS-ELA-LITERACY.SL.K.1B-Continue a conversation through multiple exchanges.
- CCSS-ELA-LITERACY.RI.K.3- With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.
- CCSS-ELA-LITERACY.SL.K.2- Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
- CCSS-ELA-LITERACY.W.K.8-With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
- CCSS-ELA-LITERACY.RI.K.4- With prompting and support, ask and answer questions about unknown words in a text.
- CCSS-ELA-LITERACY.SL.K.1- Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
- CCSS-ELA-LITERACY.L.K.4-Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on kindergarten reading and content.
- CCSS-ELA-LITERACY.L.K.5- With guidance and support from adults, explore word relationships and nuances in word meanings.
- CCSS-ELA-LITERACY.L.5C- Identify real-life connections between words and their use (e.g., note places at school that are colorful).
- CCSS-ELA-LITERACY.L.K.6- Use words and phrases acquired through conversations, reading and

being read to, and responding to texts.

- CCSS-ELA-LITERACY.SL.K.3- Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
- CCSS-ELA-LITERACY.SL.K.4-Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.

Activity-Students will create Community Service Announcements to communicate about our weather and how to prepare for it.

Math Common Core Standards-

- K.CC.B.5
- K.CC.A.1
- K.MD.B.3
- K.MD.A.2
- K.CC.C.6
- K.CC.C.7
- K.CC.A.3
- K.CC.B.4
- K.CC.A.1

Activity- Students make observations on how it looks and feels outside. Students will make a picture graph for each type of weather they observe.

Science and Society

Diversity Integration

Objective: Students will be able to relate how snowflakes are unique to how people are unique.

Activity: The students will listen to Snowflake Bentley on Bookflix. The teacher will lead a discussion about how people, like snowflakes, are all different but special in their own way. The students will create their own paper snowflakes and share them with the class.

Science and Engineering Practices

Obtaining, Evaluating, and Communicating Information:

- Read grade-appropriate texts and/or use media to obtain scientific information to describe patterns in and/or evidence about the natural and designed world(s). (INFO-P1)
- Describe how specific images (e.g., a diagram showing how a machine works) support a scientific or engineering idea. (INFO-P2)
- 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 and/or supporting a scientific claim. (INFO-P3)
- Communicate information or design ideas and/or solutions with others in oral and/or written forms using models, drawings, writing, or numbers that provide detail about scientific ideas, practices, and/or design ideas. (INFO-P4)

Asking Questions and Defining Problems:

- Ask questions based on observations to find more information about the natural world. (AQDP-P1)

Analyzing and Interpreting Data:

- Use observations (firsthand or from media) to describe patterns and/or relationships in the natural and designed world(s) in order to answer scientific questions and solve problems. (DATA-P3)
- Record information (observations, thoughts, and ideas). (DATA-P1)
- Use and share pictures, drawings, and/or writings of observations. (DATA-P2)

Using Mathematics and Computational Thinking

- Describe, measure, and/or compare quantitative attributes of different objects and display the data using simple graphs. (MATH-P3)

- Use counting and numbers to identify and describe patterns in the natural and designed world(s). (MATH-P2)

STEAM Connection-

Science and engineering involve the use of tools to observe and measure things.

- Students use thermometers and make and use rain gauges and wind gauges to measure temperature, rain/snow amount, and wind speed in order to describe local weather conditions.

Social Justice

See Social Studies Appendix C for more details

Theme: Wellness/Mindfulness

You Are Like A Seed

Question:

- How are you like a seed? (you start off small and then you grow)

Activity: Discuss: How are you like a seed?

Enduring Undertandings

Next Generation Standards

- 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.)

- 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.)

Cross-Cutting Concepts

Cause and Effect

- Events have causes that generate observable patterns. (CE-P1)

Patterns

- Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence. (PAT-P1)

Focus Areas

Knowledge

- There are different types of severe weather.
- Where you live can determine what types of severe weather occurs.
- Weather scientists help us prepare for severe weather.
- We can prepare for severe weather.

Skills

- There are different types of severe weather.
- Where you live can determine what types of severe weather occurs.
- Weather scientists help us prepare for severe weather.
- We can prepare for severe weather.

Understandings

- Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.

CSDT Technology Integration

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.1.2.DA.3: Identify and describe patterns in data visualizations

8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process.

8.2.2.ITH.3: Identify how technology impacts or improves life.

Activity: Students will keep track of daily weather and predict the weather for the next day like weather reporters do. They can record videos each day of their weather forecasting using FlipGrid.

Resources

Primary Resources

- Mystery Science
- OpenSci Ed lessons

Core

- Types of Weather Activity: "Hello World! Weather", by Jill McDonald
- Weather Forecasting Activity
- Weather Tools Activity
- Blizzards Activity
- Hurricanes Activity
- Tornadoes Activity
- Tornado Lab
- How to get Ready for a Big Storm Read Along

Supplemental

- Air Pressure Activity
- Making a Barometer Lab
- National Weather Service Activity
- Sand Storms Activity
- Preparing for Severe Weather Activity

Climate Change

Career Readiness

9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).
9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).
9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
9.4.2.DC.7: Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1).

- Activity: Students will learn about Smokey the Bear and how to prevent forest fires