Kindergarten Unit 1 - Weather

Content Area: **Science**
Course(s): **Science Grade K**
Time Period: **MP1**
Length: **22 days**
Status: **Published**

NJSLS - Science

SCI.K-ESS2-1	Use and share observations of local weather conditions to describe patterns over time.
SCI.K-ESS3-2	Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.
SCI.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.

Science and Engineering Practices

Analyzing and Interpreting Data

Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-ESS2-1)

Asking Questions and Defining Problems

Ask questions based on observations to find more information about the designed world. (K-ESS3-2, 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)

Obtaining, Evaluating, and Communicating Information

Read grade-appropriate texts and/or use media to obtain scientific information to describe patterns in the natural world. (K-ESS3-2)

Disciplinary Core Ideas

ESS2.D: Weather and Climate

Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a

particular time. People measure these conditions to describe and record the weather and to notice patterns over time. (K-ESS2-1)

ESS3.B: Natural Hazards

Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. (K-ESS3-2)

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)

Crosscutting Concepts

Patterns

Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (K-ESS2-1)

Cause and Effect

Events have causes that generate observable patterns. (K-ESS3-2)

Science Knowledge is Based on Empirical Evidence

Scientists look for patterns and order when making observations about the world. (K-ESS2-1)

Interdependence of Science, Engineering, and Technology

People encounter questions about the natural world every day. (K-ESS3-2)

Influence of Engineering, Technology, and Science on Society and the Natural World

People depend on various technologies in their lives; human life would be very different without technology. (K-ESS3-2)

Rationale and Transfer Goals

What is the weather like today and how is it different from yesterday?

In this unit of study, students develop an understanding of patterns and variations in local weather and the use of weather forecasting to prepare for and respond to severe weather. The crosscutting concepts of patterns; cause and effect; interdependence of science, engineering, and technology; and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for the disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in asking questions, analyzing and interpreting data, and obtaining, evaluating, and communicating information. Students are also expected to use these practices to demonstrate an understanding of the core ideas.

Note: Unlike other science units, the Weather unit is intended to become a part of the classroom routine throughout the year. Some weather patterns are not obvious unless the students collect data over long periods of time. For example, in some locations it is sunnier during some parts of a year than others. The temperature outside will change from fall, winter, spring, to summer. Also, during some periods, the weather data should be recorded in the morning and then again in the afternoon. Students will be able to observe patterns in temperature through the course of the day.

Enduring Understandings

Similarities and differences can be seen by observing objects.

Science includes observations, collection of data, and communication.

Weather impacts our daily life and our day to day decisions.

Weather tends to follow patterns over time.

Essential Questions

How can someone predict what the weather will be tomorrow?

How does weather forecasting help us to prepare for dangerous weather?

Content - What will students know?

- Weather is the combination of sunlight, wind, snow, or rain and temperature in a particular region at a particular time.
- People measure these conditions to describe and record the weather and to notice patterns over time.
- People look for patterns in the weather data when making observations about the world.
- Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.
- Some kinds of severe weather are more likely than others in a given region.
- Weather scientists forecast severe weather so that communities can prepare for and respond to these events.
- Events have causes that generate observable patterns.
- People encounter questions about the natural world every day.
- People depend on various technologies in their lives; human life would be very different without technology.
- Before beginning to design a solution, it is important to clearly understand the problem.
- Asking questions, making observations, and gathering information are helpful in thinking about problems.
- A situation that people want to change or create can be approached as a problem to be solved through engineering.

Skills - What will students be able to do?

- Observe patterns on a weather chart. For example, Have we had more sunny days or cloudy days? What is your evidence?
- Describe temperature in whole numbers and relative terms like warmer and cooler.
- Observe patterns in events generated by cause and effect relationships.
- Read grade appropriate texts and/or use media to obtain scientific information to describe patterns in the natural world.
- Ask questions based on observations to find more information about the designed world.
- Ask questions to obtain information about the purpose of weather forecasting to prepare for and respond to severe weather (emphasizing local forms of severe weather).
- Define a simple problem that can be solved through the development of a new or improved object or tool.
- Ask questions, make observations, and gather information about a situation people want to change in order to define a simple problem that can be solved through the development of a new or improved object or tool.

Activities - How will we teach the content and skills?

- Mystery Science Wild Weather Lesson 1
- Mystery Science Wild Weather Lesson 2
- Mystery Science Wild Weather Lesson 3
- Mystery Science Circle of Seasons Lesson 1
- Mystery Science Circle of Seasons Lesson 2
- Mystery Science Circle of Seasons Lesson 3
- The Wonders of Science Weather Patterns
- NSTA Endorsed Lessons
- The Wonders of Science Forecasting Severe Weather

Evidence/Assessments - How will we know what students have learned?

- Mystery Science Wild Weather Lesson 1 Assessment
- Mystery Science Wild Weather Lesson 2 Assessment
- Mystery Science Wild Weather Lesson 3 Assessment
- Mystery Science Circle of Seasons Lesson 1 Assessment
- Mystery Science Circle of Seasons Lesson 2 Assessment
- Mystery Science Circle of Seasons Lesson 3 Assessment
- Kindergarten Unit 1 Common Assessment

Spiraling for Mastery

Content or Skill for this Unit	Spiral Focus from Previous Unit	Instructional Activity
N/A	N/A	N/A

Key Resources

Mystery Science

NJCTL Weather Unit

Weather Patterns

Weather Walks

Science - Weather

About the Weather

21st Century Life and Careers

WRK.9.1.2.CAP.1	Make a list of different types of jobs and describe the skills associated with each job.

Career Readiness, Life Literacies, & Key Skills

TECH.9.4.2.CI.1	Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).
TECH.9.4.2.CI.2	Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).
TECH.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).
TECH.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).
TECH.9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

Interdisciplinary Connections/Companion Standards

InterDisciplinary Connections

NJSLS ELA

W.K.7 Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-ESS2-1)

RI.K.1 With prompting and support, ask and answer questions about key details in a text. (K-ESS3-2)

SL.K.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood. (K-ESS3-2)

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. (K-2-ETS1-1)

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. (K-2-ETS1-1)

W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1)

NJSLS Mathematics

MP.2 Reason abstractly and quantitatively. (K-ESS2-1, K-2-ETS1-1)

MP.4 Model with mathematics. (K-ESS2-1, K-2-ETS1-1)

MP.5 Use appropriate tools strategically. (K-2-ETS1-1)

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. (K-2-ETS1-1)

K.CC.A Know number names and the count sequence. (K-ESS2-1)

K.MD.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. (K-ESS2-1)

K.MD.B.3 Classify objects into given categories; count the number of objects in each category and sort the categories by count. (K-ESS2-1)

English Language Arts

With the teachers' support, the students collectively research and write about how people predict the weather. The students listen to non-fiction stories about the weather and how people describe weather (rainy, sunny, cloudy, cool, warm, etc.). With prompting and support, the students ask and answer questions about key details in the text. Students get information and help each other clarify their thinking as part of the activities. Students demonstrate their understanding of the texts by being able to orally answer such questions as who, what, where, when, why, and how. With guidance and support from adults and in collaboration with peers, students use digital tools to produce and publish writing about the patterns that they see in their weather observations. Throughout the school year, students recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1) W.2.8

Mathematics

With adult support, students measure and record various types of weather (e.g., rainfall or snow amounts, relative temperature at different times of the day and over a period of time). They mathematically represent

real-world information by organizing their data into simple weather charts and graphs. Kindergarteners attend to the meaning of various quantities using a variety of units of measure and use counting to analyze data and determine patterns in charts and graphs. By using media resources, students explore how weather scientists represent real-world weather data with picture representations, charts, and graphs. They can use this information to think about how weather scientists use tools to collect and record weather data in order to determine patterns of change. Students will learn the meaning of various quantities used in simple weather charts and graphs, both from classroom observations and from media sources, by counting and comparing severe weather data with daily weather data (e.g., relative amounts of rainfall, snowfall). By analyzing data from weather graphs and charts, young students begin to understand how severe weather affects people and communities and that weather scientists play an important role in predicting severe weather conditions.