



Weather

Preschool

Earth and Space Science

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Unit Overview**Unit Description**

In this Earth and Space Science unit, students are charged to help the Field Museum's famous dinosaur, SUE the T. rex, prepare to play outside in Chicago. Students will begin the unit by observing and recording the weather outside on a given day in order to build a common understanding of observable weather conditions in the fall season. Using a weather chart, students will track the fall weather over the course of multiple days and then will analyze the observed weather to identify fall weather patterns over time. Students will use their observations as evidence for what clothing they would recommend SUE wear outside on a typical fall day in Chicago.

Driving Phenomena

Typical weather conditions change from season to season, but there is a predictable pattern of change.

Performance Expectations

This unit was aligned to the following science standards:

Next Generation Science Standards

- **K-ESS2-1**

Use and share observations of local weather conditions to describe patterns over time.

Illinois Early Learning Standards-Science

- **11.A.ECd**

Collect, describe, compare, and record information from observations and investigations.

- **12.F.ECa**

Observe and discuss changes in weather using common vocabulary.

NGSS Unit Alignment

K-ESS2-1 Use and share observations of local weather conditions to describe patterns over time.
Document A Framework for K-12 Science Education:

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Analyzing and Interpreting Data Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</p> <ul style="list-style-type: none"> Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. <p>-----</p> <p>Connections to Nature of Science</p> <p>Science Knowledge is Based on Empirical Evidence</p> <ul style="list-style-type: none"> Scientists look for patterns and order when making observations about the world. 	<p>ESS2.D: Weather and Climate</p> <ul style="list-style-type: none"> 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. 	<p>Patterns</p> <ul style="list-style-type: none"> Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.

Connections to the three dimensions in this unit:

SEP: Asking Questions and Defining Problems & Analyzing and Interpreting Data

Students will practice making observations of the weather. Students will record their observations on a weather chart. Using the collected data, students will analyze the weather chart in order to describe patterns of typical weather over a given time. The pattern of typical weather will support students in answering the question: What should SUE the dinosaur wear outside?

DCI:

Weather and Climate

Students will build an understanding of the types of conditions that indicate the weather in a particular place (their school) at a particular time. Students will observe the weather conditions and record their observations on a weather chart. Students will use their recorded observations to determine patterns for the typical weather over a given time.

CCC:

Patterns

Students will observe and record the morning and afternoon weather in order to determine patterns in typical weather conditions for a given area and time of day. Using their observations as data, students will describe the patterns they notice in typical and severe weather.

WeatherEarth and Space Science **Preschool****Investigation 1: Do we wear different clothes in different weather?****Lesson 1.1: Meet SUE the Dinosaur****Lesson Description****15 minutes**

Students will be introduced to SUE the T. rex, who lives at The Field Museum. SUE wants to go outside to play, but it's been a long time since they have been outside the Museum. In this science unit, students will help SUE learn what to wear outside so the dinosaur can be comfortable in the seasonal weather. This unit begins by having students identify the current season and brainstorm ways to find out the typical weather for the current time of year.

Objective

Use observations to describe the typical weather that occurs in Chicago during the fall season.

Guiding Questions

How can we investigate what the weather is like during fall?

Materials**Per Class**

- Teacher Resource 1.1.A
- Teacher Resource 1.1.B

Materials Preparation

- Print Teacher Resource 1.1.A and 1.1.B

New Vocabulary

Weather – The mix of sunlight, wind, snow or rain, and temperature in one location at one time

Weather**Earth and Space Science Preschool****Investigation 1: Do we wear different clothes in different weather?****Lesson 1.1: Meet SUE the Dinosaur****Engage****3 minutes**

1. Ask students to describe why they have decided to wear the clothes they have on today. Guide the discussion so students recognize that some of the clothes they came to school in are because of the weather outside. Tell students that they will be helping someone very special learn about the weather in Chicago.
2. Hold up the picture (**Teacher Resource 1.1.A**) of Sue the T. rex and read the following narrative:

This is SUE and they are a dinosaur who lives at The Field Museum. SUE has been inside the museum for so long and they want to go outside to play. The President of The Field Museum has told SUE they can go outside for one day. SUE can't wait to go outside, but first they need our help. They don't remember what the weather outside feels like, and aren't sure what they should wear outside to play. Do you think we can help them learn about the weather and what to wear?

Investigate**15 minutes**

1. Ask students to describe the types of weather they experience in Chicago. Listen for them to say that it is sunny, rainy, snowy, cold, hot, etc. As students share their thoughts, hold up the appropriate icons (**Teacher Resource 1.1.B**).
2. Together with students, list the seasons that occur throughout the year. Ask students to identify the season they are currently in; fall. Tell students that SUE the dinosaur would like to go outside, but is not sure what the weather is like during the fall season. Brainstorm with students a way to investigate what fall weather is like to inform SUE. Elicit and record student responses on the board or a blank piece of chart paper.
3. Look for students to recognize that they could go outside to see what the weather is like in the fall. Guide them to this idea if necessary.

Reflect and Share**2 minutes**

1. Let students know that next science time they will be exploring what different types of weather look and feel like.
2. Have students practice naming the different kinds of weather conditions by holding up the icons and asking students to share what kind of weather the picture represents.

Weather

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Teacher Resource 1.1.A
Meet SUE the Dinosaur





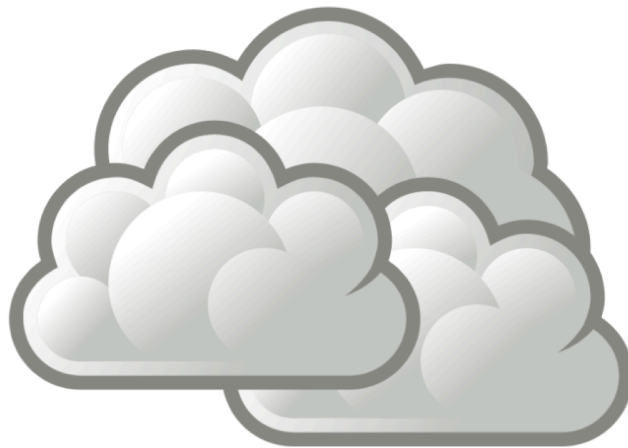
Sunny



Rainy



Snowy



Cloudy



Windy



Cold



Hot



Mild

WeatherEarth and Space Science **Preschool****Investigation 1: Do we wear different clothes in different weather?****Lesson 1.2: Hot Weather****Lesson Description****15 minutes**

Through reading a book and discussing their observations, students will recognize the characteristics of a hot/sunny day. Students will determine what gear and items are needed to play outside on a hot/sunny day.

Objective

Students will use observations to describe hot/sunny weather and recognize gear and items needed to play outside during hot/sunny weather.

Guiding Questions

What should we wear outside to play on a hot day?

Materials**Per class**

- Hot/Sunny weather book
- Sunglasses
- Teacher Resource 1.2.B
- Teacher Resource 1.2.C

Materials Preparation

- Choose a book to read that details hot/sunny weather (options listed in Teacher Resource 1.2.A) and prepare stopping points to allow student questions/wonderings.
- Prepare the Types of Weather Chart (Teacher Resource 1.2.B)
- Prepare the Dressing Sue Chart (Teacher Resource 1.2.C)

Weather**Earth and Space Science****Preschool****Investigation 1: What are the daily weather patterns in Chicago?****Lesson 1.2: Observing and Recording Weather****Engage****3 minutes**

1. Show the class a pair of sunglasses. Ask for volunteers to try the sunglasses on and describe how the classroom looks when they are wearing the sunglasses.
2. Based on trying on the sunglasses and their prior knowledge, lead students in a discussion about when they would wear sunglasses. Ask students how it often feels outside when they wear sunglasses.

Investigate**10 minutes**

1. Before reading the selected book, display the Types of Weather Chart (**Teacher Resource 1.2.B**). While reading, have the students identify: how the weather feels and looks, what the characters do during the weather and how they dress.
2. As you are reading the story, use clarifying questions to help students remember key ideas.
3. At the end of the story, complete the Types of Weather Chart with student responses. Guide students to the idea that often on sunny days it feels hot outside, though that is not always the case.

Reflect and Share**2 minutes**

1. Let students know that next science time, they will be exploring what different types of weather look and feel like.
2. Have students practice naming the different kinds of weather conditions by holding up the icons and asking students to share what kind of weather the picture represents.

Teacher Resource 1.2.A**Weather and Temperature Icons****Weather Themed Books****Sunny**

- Let it Shine by Maryann Cocca-Leffler
- One, Hot Summer Day by Nina Crews
- A Sunny Day by Robin Nelson
- Sun, Sun by Brad Gray

Windy

- Gilberto and The Wind by Marie Hall Ets
- I Face the Wind by Vicki Cobb
- The Windy Day by Anna Melbourne
- Like a Windy Day by Frank Asch
- The Wind Blew by Pat Hutchins

Rainy

- Down Comes The Rain (Let's Read and Find Out Science 2) by Dr. Franklyn M. Branley
- Let it Rain! by Maryann Colca-Leffler
- The Rain Came Down by David Shannon
- The Rainy Day by Anna Milbourne
- Raindrop, Plop! by Wendy Cheyette Lewison
- Split! Splat! by Amy Gibson

Snowy

- Froggy Gets Dressed by Jonathan London
- Let it Snow! by Maryann Colca-Leffler
- The Snowy Day by Ezra Jack Keats
- Snow! Snow! Snow! by Lee Harper

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Teacher Resource 1.2.B

What We Notice About _____ Weather Sample T- Chart

Weather Themed Books



Looks Like

Feels Like



Sunny

Bright

Kids Playing

Sticky

Sweaty

Weather

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Investigation 1: Do we wear different clothes in different weather?

Lesson 1.3: Windy Weather

Lesson Description

20 minutes

Through reading a book and discussing their observations, students will recognize the characteristics of a windy day. Students will determine what gear and items are needed to play outside on a windy day.

Objective

Students will use observations to describe windy weather and recognize gear and items needed to play outside during windy weather.

Guiding Questions

What should we wear outside to play on a windy day?

Materials

Per class

- Video and audio clips of wind blowing (Wind Sound clips)
 - { HYPERLINK "https://safeshare.tv/x/v-cyg-nIM38" }
 - { HYPERLINK "https://safeshare.tv/x/PazmXWSOchw" }
 - { HYPERLINK "https://safeshare.tv/x/ss5c4b4f645f4c9" }

Materials Preparation

- Select the video or audio clips to play for your students
- Choose a book to read that details windy weather (options listed in Teacher Resource 1.2A) and prepare stopping points to allow student questions/wonderings.

Weather**Earth and Space Science Preschool****Investigation 1: What are the daily weather patterns in Chicago?****Lesson 1.3: Analyzing Classroom Weather Data****Engage****3 minutes**

1. In a group, explain that the students will use their scientist eyes and ears to learn about a type of weather. Play one of the windy weather clips. After students have listened and/or watched carefully, have the students describe what kind of weather is happening.
2. Play other clips to help students fill in any missing details.

Investigate**10 minutes**

1. Before reading the selected book, display the weather chart and have the students identify what you are looking for while reading: how the weather feels and looks, what the characters do during the weather and how they dress.
2. As you are reading the story, use clarifying questions to help students remember key ideas.
3. At the end of the story, complete the Types of Weather Chart (**Teacher Resource 1.2.B**) with student responses.

Reflect and Share**2 minutes**

1. Review all of the student responses to what the characters in the book are wearing.
2. Have students pair and share what they think someone should wear to play outside on a windy day.

WeatherEarth and Space Science **Preschool****Investigation 1: What are the daily weather patterns in Chicago?****Lesson 1.4: Rainy Weather****Lesson Description****25 minutes**

Through reading a book and discussing their observations, students will recognize the characteristics of a rainy day. Students will determine what gear and items are needed to play outside on a rainy day.

Objective

Students will use observations to describe typical rainy weather and recognize gear and items needed to play outside during rainy weather.

Guiding Questions

What should we wear outside to play on a rainy day?

Materials**Per student**

- Construction Paper
- Glue
- Student Resource 1.4.A
- Student Resource 1.4.B

Per Class

- Rainy weather book
- Umbrella
- Teacher Resource 1.2.B

Materials Preparation

- Precut rainy and non-rainy gear icons for students to sort
- Choose a book to read that details rainy weather (options listed in Teacher Resource 1.2.A) and prepare stopping points to allow student questions/wonderings.

Weather**Earth and Space Science****Preschool****Investigation 1: What are the daily weather patterns in Chicago?****Lesson 1.4: Rainy Weather****Engage****5 minutes**

1. Show the students an umbrella. Ask the students what the umbrella may be used for. Guide the students to consider all possibilities towards the purpose of the umbrella.
2. Tell students that they will be investigating what they notice when it rains and what we wear when it rains outside.

Investigate**10 minutes**

1. Before reading the selected book, display the Types of Weather Chart (**Teacher Resource 1.2.B**) and have the students identify what you are looking for while reading: how the weather feels and looks, what the characters do during the weather and how they dress. Read aloud a book with the rain theme.
2. Stop at multiple points in the book to ask questions and guide student questions. Ask students what they notice about how the weather is affecting the story.
3. At the end of the story, complete the Types of Weather Chart (**Teacher Resource 1.2.B**) with student responses.

Reflect and Share**10 minutes**

1. In small groups, give each student the pre-cut pictures from **Student Resource 1.4.A** and **Student Resource 1.4.B**
2. Explain that now that they have observed rainy weather, they will sort items that they would use or wear when they go out to play. Instruct students to put the pictures of items they would use if it was raining outside on the rainy side and the items they would not use on the not rainy side.
3. Ask students to discuss why they chose to place each item where they did.
4. Summarize with students what gear is used to play outside on a rainy day.

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**Student Resource 1.4.A
Rainy Weather Sort Items**



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Student Resource 1.4.B

Rainy Weather Sort Items



WeatherEarth and Space Science **Preschool****Investigation 1: What are the daily weather patterns in Chicago?****Lesson 1.5: Snowy Weather****Lesson Description****25 minutes**

Through reading a book and discussing their observations, students will recognize the characteristics of a snowy day. Students will determine what gear and items are needed to play outside on a snowy day.

Objective

Students will use observations to describe snowy weather and recognize gear and items needed to play outside during a snowy day.

Guiding Question

What should we wear outside to play on a snowy day?

Materials**Per student**

- Drawing Paper
- Crayons

Per Class

- Snowy weather book
- Teacher Resource 1.5.A
- Types of Weather Chart (Teacher Resource 1.2.B)

Materials Preparation

- Choose a book to read that details snowy weather (options listed in Teacher Resource 1.2A) and prepare stopping points to allow student questions/wonderings.

Weather**Earth and Space Science Preschool****Investigation 1: What are the daily weather patterns in Chicago?****Lesson 1.5: Snowy Weather****Engage****5 minutes**

1. Show the students Teacher Resource 1.5.A. Allow students some time to observe the pictures.
2. Ask the students to share what they notice about the picture.
3. Tell students that we will now read a book together about snow. Remind students to pay attention and see if they notice some of the same things they saw in the photograph.

Investigate**10 minutes**

1. Before reading the selected book, display the Types of Weather Chart (**Teacher Resource 1.2.B**) and have the students identify what you are looking for while reading: how the weather feels and looks, what the characters do during the weather and how they dress. Read aloud a book with the snow theme.
2. Stop at multiple points in the book to ask questions and guide student questions. Ask students what they notice about how the weather is affecting the story.
3. At the end of the story, complete the Types of Weather Chart (**Teacher Resource 1.2.B**) with student responses.

Reflect and Share**10 minutes**

1. Ask the students to share what they like to do when it snows. Ask students what they wear when it is snowy outside.
2. Give each student a sheet of paper. Ask them to draw what they look like when they go out to play in the snow.

Weather

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Teacher Resource 1.5.A
Winter Scenes



Photo Credit: J. Atherton, Wikimedia Commons, 2004

Weather

Earth and Space Science Preschool

Teacher Resource 1.5.A
Winter Scenes



Photo Credit: J. Atherton, Wikimedia Commons, 2004

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Teacher Resource 1.5.A
Winter Scenes



Photo Credit: T. Tiger, Wikimedia Commons, 2010

WeatherEarth and Space Science **Preschool****Investigation 2: What is the weather like in fall?****Lesson 2.1: Weather Walk****Lesson Description****20 minutes**

Students will discuss the concept of making scientific observations. They will practice making observations in the classroom, and will then go outside to make observations of the fall weather.

Objective

Students will use observations to describe the typical weather that occurs in Chicago during the fall season.

Guiding Questions

What does the weather look and feel like today?

Materials**Per class**

- Butcher or Chart Paper
- Markers
- Weather and Temperature Icons
- Teacher Resource 1.1.A
- Teacher Resource 2.1.A
- Teacher Resource 2.1.B

Materials Preparation

- Print Teacher 1.1.A-Picture of Sue the Dinosaur
- Prepare Butcher/Chart Paper (Refer to Teacher Resource 2.1.A for an example)
- Create the Fall Weather Chart (use Teacher Resource 2.1.B as an example)
- Gather Materials as Needed

New Vocabulary

Observe – to look closely and carefully as a way to gather information

Mild – not too hot and not too cold, in the middle

Investigation 2: What is the weather like in fall?**Lesson 2.1: Weather Walk****Engage****5 minutes**

1. In a large group, remind students that they are going to help SUE the dinosaur figure out what the weather is like to help her decide what to wear outside to play.
2. Explain that they will go outside today to make observations. They will be looking very closely for different kinds of weather.
3. Tell students, when scientists use their eyes to look very closely and carefully, it's called "making observations." Ask students to make circles with their hands and put their hands up to their eyes like binoculars to make "Observation Glasses."
4. Lead students in using their "Observation Glasses" to make practice observations of the picture of SUE the T. rex (Use **Teacher Resource 1.1.A**). Use question prompts to help guide their observations:
 - a. What do you see or observe about SUE?
 - b. Does SUE look big or little?
 - c. What does SUE's body look like?

Investigate**10 minutes**

1. Explain to students that when they go outside to observe the weather, they should try to answer two questions with their observations: *What does it look like outside? What does it feel like outside?*
2. Ask students what types of weather they might observe. Hold up the weather icons as students share their thoughts. Guide students to say that they can observe if it's sunny, cloudy, snowy, etc.
3. Then ask students to think about what it might feel like outside. Hold up temperature icons as students share their thoughts. Guide students to say they can observe if it's hot, cold, or somewhere in the middle.
4. Tell students that the temperature in the middle of hot and cold is called "mild." (Refer to Goldilocks and the Three Bears for the concept of temperature being neither hot nor cold, but mild or "just right.")
5. Gather students and proceed outside. Bring chart paper to record student questions and observations. See **Teacher Resource 2.1.A** for an example.
6. Encourage students to use their "Observation Glasses" to make observations of the weather. After an appropriate amount of time, gather the students to go back inside the classroom.

Reflect and Share

10 minutes

1. Ask students to share what they observed about the weather (*What did it look like outside? What did it feel like outside?*). Hold up the appropriate icons as the students share their observations.
2. Guide students to an agreement of the weather—specifically, what it looks like outside (sunny, cloudy, rainy, snowy, windy) and what it feels like outside (hot, cold, or mild). Record this decision on the Fall Weather Chart (see **Teacher Resource 2.1.B** for an example). Cover up the majority of the chart so students focus on only today's observation. Save for the next time.
3. Ask students what SUE should and should not wear if they go outside to play today. Elicit student responses and encourage them to connect their answers to their weather observations. Connect student answers to Lessons 1.2-1.5 as a reference for different types of weather.

Teacher Resource 2.1.A

Weather Walk Discussion – EXAMPLE

Weather Themed Books



Looks Like

Feels Like



Sunny

I see leaves on the ground









It's bright outside-I need
sunglassesThe sky is blue and there are some
clouds

It's warm out!

I don't need to wear my big jacket.

It feels nice outside. I like standing
in the sun.

Weather Chart – EXAMPLE

10								
9								
8								
7								
6								
5								
4								
3								
2								
1	X						X	
								
	Sunny	Cloudy	Windy	Rainy	Snowy	Cold	Mild	Hot
	What does it <u>look</u> like outside?					What does it <u>feel</u> like outside?		

WeatherEarth and Space Science **Preschool****Investigation 2: What is the weather like in fall?****Lesson 2.2: Tracking the Weather****Lesson Description****15 minutes**

In small groups, students will revisit the outdoor observations they made of the weather. Students will discuss if the weather has changed since their outdoor trip. They will be introduced to the weather chart as a way to track whether or not the weather changes from day to day.

Objective

Students will use observations to describe the typical weather that occurs in Chicago during the fall season.

Guiding Questions

Is the weather different from the day we made our observations?

Materials

- **Per Class**
- Fall Weather Chart (Teacher Resource 2.1.B)
- Weather and Temperature Icons (Teacher Resource 1.1.B)
- Stickers (optional)
- Teacher Resource 2.2.A

Materials Preparation

Gather materials as needed

New Vocabulary

Change – to become different

Weather**Earth and Space Science Preschool****Investigation 2: What is the weather like in fall?****Lesson 2.2: Tracking the Weather****Engage****2 minutes**

1. During Center Time, work with 3-4 students at a time.
2. Remind students what the class decided the weather looked and felt like when they made their outdoor observations.
3. Ask students if the weather is the same today and if they think that the weather changes. Elicit student responses.

Investigate**5 minutes**

1. Remind students that SUE is relying on us to help her figure out what they need to wear to play outside. Challenge students to think about how we can figure out if the weather changes. Elicit student responses.
2. Remind students that we only looked at one day of weather, and ask what they think would happen if we looked at the weather over multiple days. Guide students to say that it would be better to look at weather over many days to get an overall picture of fall weather.
3. Introduce students to the Fall Weather Chart from Lesson 2.1. Remind them that they used this chart to record the weather on the day of their outside weather walk.
4. Explain to students that they can use this chart to see if the weather changes over many days. (See **Teacher Resource 2.2.A** for potential guidelines)
5. Point out the “what weather looks like” section and the “what weather feels like” section of the chart. Use the weather and temperature icons to remind students of the possible weather options they could observe.
6. Have students take turns practicing placing stickers on the chart to mark what the weather conditions were like the day they did their outdoor observations.

Reflect and Share**5 minutes**

1. In a large group, remind students what they said the weather looked like and felt like when they made their outdoor observations.
2. Have one or two student volunteers place stickers in the appropriate column(s).
3. Explain that we recorded one day of fall weather and that we will be observing and recording the fall weather for 10 school days. After 10 days, we will look at the chart to figure out what weather we have the MOST of in the fall. Then we can help SUE learn what they will need to wear in the fall to be comfortable outside.
4. Post the Fall Weather Chart in the room where it can be easily seen.

Teacher Resource 2.2.A**Weather Walk Discussion – EXAMPLE****Weather Themed Books****Suggested Guidelines for Procedure:**

1. Select a regular time once a day for students to make observations of the weather.
2. Identify how students will share the responsibility for making and recording observations (i.e. do all students observe at the same time? Is there a class representative or two that make and record the observations? Does the job rotate among students?)
3. At the decided upon time, have students observe the weather and share reflections on what the weather looks and feels like outside.
4. Using the weather chart (and/or icons) as a guide, facilitate a discussion with the class to come to consensus about what the weather looks like and feels like outside.
5. Invite one or two students to record observations on the weather chart by marking (with a marker or stickers) in the appropriate columns.
6. When multiple days of weather have been tracked, guide the students in analyzing the chart by counting the number of days that were sunny, rainy, cloudy, etc.
7. Support the students in using this information to identify trends or pattern in the type of weather they have observed over the multiple days.
8. Guide students in using the pattern of weather to determine what the typical weather looks and feels most like in the season.

Teaching Tips to Consider:

- Students may decide to place a mark in multiple columns on the weather chart if they feel that the weather can be described in multiple ways (i.e. sunny and cloudy) on a given day.
- Facilitate a check-in discussion during which the students analyze the weather data they have gathered so far (i.e. after 3 days/ 5 days/ 7 days).
- Students may determine that there is no clear pattern of typical weather for the time that they observed, and they may want to continue their observations for a few more days to see if a pattern emerges.

WeatherEarth and Space Science **Preschool****Investigation 2: What is the weather like in fall?****Lesson 2.3: Observing the Weather****Lesson Description****5 minutes (per weather observation and recording)**

Students will make observations of the daily weather for 10 consecutive school days. Every day, with guidance, the students will come to an agreement of what the weather looks and feels like outside and record their findings on the Fall Weather Chart.

Objective

Students will use observations to describe the typical weather that occurs in Chicago during the fall season.

Guiding Questions

What should SUE wear in the fall to go outside and play?

Materials**Per Class**

- Fall Weather Chart
- Weather and Temperature Icons
- Stickers (optional)

Materials Preparation

- Select a consistent time to observe the weather each day
- Gather supplies as needed

New Vocabulary

Most – almost all, the greatest amount or number

Weather**Earth and Space Science****Preschool****Investigation 2: What is the weather like in fall?****Lesson 2.3: Observing the Weather****Engage****5 minutes**

1. Select a consistent time for students to observe, discuss, and record the daily weather.
2. Remind students that they are helping SUE the dinosaur learn about fall weather.
3. Inform students that each day they will observe and record the weather on the Fall Weather Chart.

Investigate**5 minutes (per weather recording)**

1. At the designated time, in a large group, ask students to describe what it looks and feels like outside. Use the weather and temperature icons as visuals when students are sharing their observations.
2. Guide students to an agreement of the weather for that day.
3. Invite one or two student volunteers to place stickers on the appropriate columns on the Fall Weather Chart.
4. Repeat for 10 days total (including the weather record from Lesson 2.1).

Reflect and Share**5 minutes**

1. Build in a check-in after 5 days and 7 days so that students have the opportunity to identify emerging trends in the data.
2. Use the following question prompts during each check-in:
 - a. What weather have we had the MOST of so far?
 - b. How could we use the chart to tell us about the weather we've had?
 - c. What clothes have you worn to be comfortable outside?

Weather**Earth and Space Science Preschool****Investigation 2: What is the weather like in fall?****Lesson 2.4: Analyzing the Weather****Lesson Description****15 minutes**

After making observations of the weather for 10 consecutive days, students will analyze the chart to determine what weather is most typical for the fall in Chicago.

Objective

Students will use observations to describe the typical weather that occurs in Chicago during the fall season.

Guiding Questions

What should SUE wear in the fall to go outside and play?

Materials**Per Class**

- Fall Weather Chart
- Stickers (optional)
- Teacher Resource 2.4.A
- Teacher Resource 2.4.B
- Tape

Materials Preparation

- Print and cut out clothes on Teacher Resource 2.4.A
- Create SUE Clothing Chart (see Teacher 2.4.B as an example); use Velcro or double-sided tape so the clothing options can be easily moved

Weather

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Investigation 2: What is the weather like in fall?

Lesson 2.4: Analyzing the Weather

Engage

1 minute

1. After 10 days, tell students they will review the Weather Chart together.
2. Provide students with a few seconds to observe the chart on their own.

Investigate

5 minutes (per weather recording)

1. Point out where they recorded what the weather looked like each day.
2. Encourage students to share ideas of how the weather looked the **most** over the past 10 school days. Ask students how they think we can learn from the information they collected. Guide students to the idea that they can count the marks (or stickers) in the columns to determine which type of weather occurred the most.
3. Next, point out the area of the chart where they recorded what the weather felt like each day. Encourage students to share ideas of how the weather felt the **MOST** over the past 10 school days. Ask students how they think we can learn from the information they collected. Guide students in counting the marks (or stickers) to determine which column has the most.
4. Write the following sentence on the board: The weather in the fall is mostly _____ and _____. Have the students fill in the blanks according to how they interpreted the data on the weather chart (i.e. The weather in the fall is mostly cloudy, windy, and mild).

Note to Teachers: If, after 10 days, it is difficult for students to clearly identify what the weather looked and felt MOST like (for example it rained and snowed the same number of days), guide students to the idea that they may want to track the weather for a few more days to see if a pattern emerges.

Reflect and Share

5 minutes

1. Direct students to the SUE Clothing Chart (refer to **Teacher Resource 2.4.B** for an example chart). Explain that now students have a good idea of what the weather is most like in the fall in Chicago, and they can use this information to help SUE figure out what they will most likely need to wear to play outside in the fall.
2. Show students how they can select a clothing option and place it on SUE. Have one or two student volunteers come up to the Clothing Chart and decide what SUE would need to wear to be comfortable outside in the fall in Chicago.
3. Encourage students to share their reasoning for the clothing choice. Guide students to connect their recommendation to the data on the Fall Weather Chart. (i.e. The weather in the fall is mostly cloudy, windy, and mild so SUE should wear a wind jacket, tennis shoes, and a scarf).
4. Tell students that SUE is also thinking about going outside in the winter. Ask students: *Will the weather be the same? How could we find out?* Elicit student responses. Tell students that we will be revisiting this question next time.

Note to Teachers: You may decide to facilitate the Reflect and Share portion of the lesson during centers or stations time to give each student the opportunity to make a clothing recommendation that is based on the weather data. This can provide an opportunity for a formative assessment for each student.

Weather

Earth and Space Science Preschool

**Teacher Resource 2.4.A
SUE Clothing Options**



Weather

Earth and Space Science

Preschool

Teacher Resource 2.4.A
SUE Clothing Options



Weather

Earth and Space Science

Preschool

Teacher Resource 2.4.A
SUE Clothing Options



Weather

Earth and Space Science

Preschool

Teacher Resource 2.4.A
SUE Clothing Options



Teacher Resource 2.4.B

SUE's Clothing Chart-EXAMPLE

What should SUE wear in the fall?



**Investigation 3: Class Performance Task: What Should SUE Wear Outside?
3.1: Dress SUE for the Weather****Lesson Description****15 minutes**

Students will learn that SUE the dinosaur has decided that they want to go outside today. Individually, students are asked to observe the weather and interpret the weather chart to determine what outfit SUE should wear. Students then are asked to explain their reasoning for the clothing recommendation.

Objective

Students will use observations of weather patterns in a specific season to make a claim for a clothing recommendation.

Guiding Questions

What should SUE wear for their day outside the Museum?

Materials**Per Class**

- SUE Clothing Chart (from Lesson 2.4)
- Teacher Resource 3.1.A
- Butcher Paper

Materials Preparation

- Gather materials
- Print Teacher Resource 3.1.A for each child

Weather**Earth and Space Science Preschool****Investigation 3: Class Performance Task: What Should SUE Wear Outside?****3.1: Dress SUE for the Weather****Engage****5 minutes**

1. In small groups, tell students that they have received a letter from SUE the T. rex!
2. Read the letter below:

Dear Students,

Thank you for working so hard to learn about the different kinds of weather we have in Chicago. I am very excited to be able to play outside for one day and, after a lot of thinking, I have decided to go outside today. Now that I have decided, can you please let me know what I should expect? What should I wear to be comfortable? Write back soon!

Love, SUE

3. Ask students: *What can we do to make sure SUE is ready for their day outside?*

Investigate**10 minutes per group**

1. Have students look outside and describe how the weather looks and what they think it feels like.
2. Show students the picture of SUE and the clothing choices.
3. Encourage students to place the clothing they think SUE should wear to be comfortable outside. Ask students to explain their choices.

Reflect and Share**5 minutes**

1. Bring students back together in a large group. Tell students that they are going to write a letter back to SUE.
2. Use a piece of butcher paper to create a class letter to SUE that includes the following information
 - a. 3-4 clothing items that SUE should plan to wear
 - b. What SUE should do on their day outside
3. Let students know that their letter will be sent off to SUE and they'll now be ready for their day outside in Chicago!

Teacher Resource 3.1.A
Student Response RubricStudent Name:

Ask each student the questions below. Prompt students to use the weather chart to support their answers. Write down student responses to the questions, marking answers with student's name or initials.

	3 points- Meets Standard	2 point- Developing	1 points- Does Not Approach
What should Sue wear outside today?	Student selects an appropriate outfit for SUE	Student selects some appropriate items for SUE	Student selects items that don't fit the weather for SUE
Why should Sue wear that?	Student is able to explain the reason for the outfit: "It's cold. It's rainy"	Student gives partial reasons or only can explain one item.	Student does not respond.
How do you know?	Student refers to the weather chart as a rationale for the clothing choices	Student only uses personal experience to explain choices	Student response is unrelated to the weather

Extension: Use the above rubric to assess the children you feel are ready, on how to dress Sue for specific types of weather.

- Sunny
- Rainy
- Windy
- Snowy

Change- to become different

Mild- not too hot and not too cold, in the middle

Most- almost all, the greatest amount or number

Observe- to look closely and carefully as a way to gather information

Predict- use observations to guess what might happen in the future

Weather- the mix of sunlight, wind, snow or rain, and temperature in one location at one time.