

# Meteorology

8

## ☑ Lesson Objectives

### Core Content Objectives

Students will:

- ✓ Identify ways in which weather affects daily routines, such as dress, activities, etc.
- ✓ Explain why weather prediction is important in their daily lives

### Language Arts Objectives

The following language arts objectives are addressed in this lesson. Objectives aligning with the Common Core State Standards are noted with the corresponding standard in parentheses. Refer to the Alignment Chart for additional standards addressed in all lessons in this domain.

Students will:

- ✓ With prompting and support, identify the main topic and retell key details from “Meteorology” (RI.K.2)
- ✓ With prompting and support, describe the connection between weather reports and their influences on daily routines (RI.K.3)
- ✓ With prompting and support, describe the role of an author and illustrator in a nonfiction/informational text related to the seasons (RI.K.6)
- ✓ With prompting and support, identify the reasons the author gives to explain why the job of a meteorologist is important (RI.K.8)
- ✓ With prompting and support, compare and contrast similarities and differences between the three different types of clouds (RI.K.9)
- ✓ Participate in a class research project to analyze daily weather conditions on the *Class Weather Diary* (W.K.7)
- ✓ Describe the weather pattern in the *Class Weather Diary* (SL.K.4)
- ✓ Identify multiple meanings of *record* and use them in appropriate contexts (L.K.4a)

- ✓ Identify real-life connections between words—*predict, prediction, meteorology, meteorologist, warning, and record*—and their use (L.K.5c)

## Core Vocabulary

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**meteorologist, n.** A person who studies weather and predicts what the weather will be like

*Example:* The meteorologist on the news predicts that it will snow tomorrow.

*Variation(s):* meteorologists

**meteorology, n.** The study of weather and weather prediction

*Example:* I learned about ice storms when I took a class on meteorology.

*Variation(s):* none

**record, n.** A written report of an event

*Example:* The weather record states that it rained a total of thirty inches last year.

*Variation(s):* records

**satellites, n.** Objects designed to go around Earth in space and collect information

*Example:* The weather satellites recorded the hurricane's movements over the Atlantic Ocean.

*Variation(s):* satellite

**warning, v.** Telling someone in advance that danger is near

*Example:* The siren wailed, warning us that a tornado was nearby.

*Variation(s):* warn, warns, warned


<b>Vocabulary Chart for Meteorology</b>			
Core Vocabulary words are in <b>bold</b> . Multiple Meaning Word Activity word is <u>underlined</u> . Vocabulary Instructional Activity words have an asterisk (*). Suggested words to pre-teach are in <i>italics</i> .			
<b>Type of Words</b>	<b>Tier 3</b> Domain-Specific Words	<b>Tier 2</b> General Academic Words	<b>Tier 1</b> Everyday-Speech Words
<b>Understanding</b>	cirrus cumulus hurricane <b>meteorologist</b> <b>meteorology</b> <b>satellites</b> stratus thunderstorm weatherman weatherwoman	computer future/past patterns <i>prediction</i> <i>predicts</i> severe tool	clouds plan/planning/plans prepared rain sky
<b>Multiple Meaning</b>	storm	<b><u>record</u></b> <b>warning*</b>	safe space
<b>Phrases</b>	keep an eye to the sky		on the way pay attention
<b>Cognates</b>	cirro cúmulo estrato huracán meteorología meteorologista	computadora futuro predicción severo	importante planear/planeando/ planes preparado

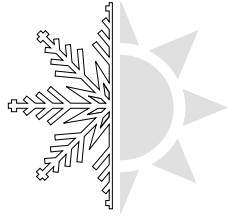
## ***Image Sequence***

This is the order in which Flip Book images will be shown for this read-aloud. It uses the same sequence as the *Tell It Again! Read-Aloud Anthology*.

1. 8A-1: Annie writing
2. 8A-2: Meteorologist
3. 8A-3: Family outdoors
4. 8A-4: Farmer watering plants
5. 8A-5: Weather report
6. 8A-6: Satellite in orbit
7. 8A-7: Cumulus clouds
8. 8A-8: Cirrus clouds

9. 8A-9: Stratus clouds
10. 8A-10: Meteorologist studying hurricane
11. 8A-11: Annie says goodbye

<i>At a Glance</i>	<b>Exercise</b>	<b>Materials</b>	<b>Minutes</b>
<b><i>Introducing the Read-Aloud</i></b>	<b>What Have We Learned?</b>		15
	<b>Introducing Meteorology</b>		
	<b>Vocabulary Preview: Predicts/Prediction, Meteorology/Meteorologist</b>		
	<b>Purpose for Listening</b>		
<b><i>Presenting the Read-Aloud</i></b>	<b>Meteorology</b>		10
<b><i>Discussing the Read-Aloud</i></b>	<b>Comprehension Questions</b>		10
	<b>Word Work: Warning</b>		
 <b>Complete Remainder of the Lesson Later in the Day</b>			
<b><i>Extensions</i></b>	<b>Multiple Meaning Word Activity: Record</b>	Poster 5M (Record)	15
	<b>Weather Report</b>	Class Weather Diary; Instructional Master 1B-1: Weather Diary (from Anthology, optional)	
	<b>Domain Related Trade Book</b>		



# Meteorology

8A

## ***Introducing the Read-Aloud***

**15** minutes

### **What Have We Learned?**

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- Remind students that their pen pal, Annie, has written them many letters about seasons and weather.
- Ask students:
  - What was the main topic—or main idea—of yesterday’s read-aloud?
  - The main idea of yesterday’s read-aloud was how to stay safe during severe—or very bad—weather.
  - What are some characteristics of a thunderstorm?
  - Thunderstorms have heavy winds, rain, thunder, lightning and sometimes hail.
  - What are some safe places to be during a thunderstorm or hailstorm?
  - Some safe places to be are indoors or in a car.
  - What are some unsafe places, or places you should not be, during a storm?
  - Some unsafe places to be are in a pool, lake or ocean, or outdoors under a tree or near tall objects.

### **Introducing Meteorology**

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- Tell students that today, they will hear Annie’s last letter about seasons and weather. Today Annie will tell them about the study of weather, which is called meteorology.
- Tell students that Annie will also tell them about predicting the weather—or figuring out what the weather will be like before it happens and why it’s important to know what the weather will be like ahead of time.

## Vocabulary Preview

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### *Predicts/Prediction*

1. In today's letter from Annie, you will hear, "A weatherman *predicts*, or makes his best guess at, what the weather is going to be like."  
  
You will also hear, "The study of weather and making weather *predictions*, or statements saying what the weather is going to be like in the future, is called meteorology."
2. Say the word *predicts* with me three times.  
Say the word *prediction* with me three times.
3. When someone predicts, they say what they think will happen in the future.  
A prediction is a guess about what will happen later, based on what you know already.
4. Readers often use information about characters and plot in a story to predict, or make predictions, about what might happen later in the story.
5. Being able to predict what the weather will be like is important.  
For example, you will need to know what the weather will be like if you are going to an outdoor soccer game or if you plan to go to the playground. Tell your partner how you use weather predictions to prepare for your day or activities you do. Try to use the word *prediction* when you tell about it.

### *Meteorology/Meteorologist*

1. In today's letter from Annie, you will hear, "The study of weather and making weather predictions is called *meteorology*. The person who does this is called a *meteorologist*."
2. Say the word *meteorology* with me three times.  
Say the word *meteorologist* with me three times.
3. *Meteorology* is the study of weather and weather prediction.  
A *meteorologist* is a person who studies weather and predicts what the weather will be like before it happens.
4. The meteorologist on the news predicts that it will snow tomorrow. He knows all about weather because he studied meteorology at school.

5. Have you ever seen a meteorologist make a weather prediction?  
Perhaps you have seen a meteorologist on television. Tell your partner some things that a meteorologist might say when he/she is predicting the weather.

### **Purpose for Listening**

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Tell students that in Annie's last letter, Annie will tell them about the study of weather and making predictions about the weather. Tell students to listen carefully to learn about the job of a meteorologist and why predicting the weather is important.

By the end of the lesson, students should be able to:

- ✓ Identify ways in which weather affects daily routines
- ✓ Explain why weather prediction is important in their daily lives



## Meteorology

### ← Show image 8A-1: Annie writing

Dear Kindergartners,

This is my last letter to you about seasons and weather. Today we will learn about predicting the weather—or guessing what kind of weather is coming soon.



### ← Show image 8A-2: Meteorologist

Have you ever watched the weatherman or weatherwoman on television? They are the people who tell us what the weather is going to be like today, tomorrow, and for the rest of the week. A weatherman predicts—or makes his best guess at—what the weather is going to be like. Sometimes he is right, and sometimes he is wrong.

The study of weather and making weather predictions is called **meteorology**. The person who does this is called a **meteorologist**. The words *weatherman* and *weatherwoman* are sometimes used to describe people we see on television who tell us about the weather. Often the weatherman or weatherwoman is a **meteorologist**.



### ← Show image 8A-3: Family outdoors

What is happening in this picture? What's the weather like?

Predicting weather is important for many different reasons. It helps people know what to wear that day and if they will need an umbrella because of rain or sunscreen because of the sun. Predicting weather also helps people to plan things like picnics or trips to the beach. If my parents are planning a family picnic, they would want to make sure that it's not going to rain on us while we're outside!

Tell your partner about a time when the weather ruined your plans to do something outside.

[Allow thirty seconds for students to talk. Call on a few students to share.]





← **Show image 8A-4: Farmer watering plants**

Farmers listen to the meteorologist to know how much rain to expect.

Why do you think knowing how much rain to expect is important to farmers?

[Call on three volunteers to answer.]

If the **meteorologist** says it is not going to rain for a while, farmers may need to find another way to water their plants. In fact, anyone whose job could be affected by the weather listens carefully to what the **meteorologist** has to say about the weather.

Can you think of other people who need to know what the weather is going to be like to do their job? Tell your partner who they are and why knowing the weather is important to them.

[Allow thirty seconds for students to talk. Call on a few students to share.]

Some other people who depend on **meteorologists'** predictions of the weather include baseball players, construction workers, garbage men, airline pilots, and astronauts!



← **Show image 8A-5: Weather report**

One way **meteorologists** predict what the weather will be like in the future is by studying weather patterns and temperatures from the past. Past weather patterns and temperatures help the meteorologist tell if the temperatures on a particular day are normal for that time of year, or if they are higher or lower than usual. He does this by checking the weather **record**. The weather **record** is a written report of what the weather was like in the past. The weather **record** is kind of like a weather diary: it lists what the weather was like on that day in previous—or past—years.



← **Show image 8A-6: Satellite in orbit**

Besides looking at weather **records**, **meteorologists** use other things, such as computers and other equipment, to predict the weather. One important tool they use to make good weather predictions is a weather **satellite**.

[Point to the satellite in the image. And have students repeat *satellite* with you.]

**Satellites** are machines sent into space that have cameras, radios, and antennas, but no people. In space, the **satellites** travel around the earth. The **satellite** cameras take pictures and send them down to **meteorologists**. Using the photos from the **satellite** up in space, **meteorologists** can see storms as they develop. Satellite pictures also help **meteorologists** predict whether the skies will be clear or cloudy.



← **Show image 8A-7: Cumulus clouds**

What do you see in this picture?

Of course, you don't always need a **meteorologist** to tell you what the weather is going to be like, especially if you see dark clouds like these.

[Point to each type of cloud as you talk about it.]

These dark clouds are types of cumulus clouds.

[Have students say the words *cumulus clouds* with you three times.]

Cumulus clouds can turn into thunderstorms. You can also find cumulus clouds during nice weather, when they appear white and puffy like a cotton ball.



← **Show image 8A-8: Cirrus clouds**

These clouds are called cirrus clouds.

[Have students say the words *cirrus clouds* with you three times.]

Cirrus clouds are thin and wispy clouds that float way up high in the sky. Usually, cirrus clouds high up the sky means that the weather is going to be clear and nice.



← **Show image 8A-9: Stratus clouds**

The third type of cloud is called stratus clouds.

[Have students say the words *stratus clouds* with you three times.]

Stratus clouds float fairly low to the ground. These flat clouds can stretch across the entire sky. They sometimes drop light rain or drizzle.



← **Show image 8A-10: Meteorologist studying hurricane**

The most important part of a **meteorologist's** job is to help save lives by **warning** people when severe weather is on the way. A **meteorologist** tells people in advance—or ahead of time—when bad weather is coming.

[Point to the meteorologist and storm image as you talk about them.]

The **meteorologist** in this picture is studying images of a hurricane—which is a huge storm that comes from the ocean. The image was made by a computer. **Satellites**, airplanes, and other tools helped the computer tell how fast the wind is moving, how much it is raining, and in which direction the storm is moving.

Thanks to computers and **satellites**, **meteorologists** saw the hurricane days before it came close to land, so they **warned** people to leave their homes and go someplace safe. A lot of people stayed safe from this severe weather because of the **meteorologists' warning**. **Meteorologists** help people prepare for and stay safe during bad weather.



← **Show image 8A-11: Annie says goodbye**

Even though you can predict—or tell ahead of time—what the weather should be like during each season where you live, it is difficult to always predict exactly what the weather will really be like each and every day. So, it is a good idea to listen to your weatherperson or **meteorologist**, so you will know to carry an umbrella or bring along extra sunscreen. That way, you'll always be prepared!

Thank you so much for helping me with my weather project. From now on, I hope you'll keep an eye to the sky and always pay attention to the weather in your neighborhood!

Your friend,

Annie

## Comprehension Questions

If students have difficulty responding to questions, reread pertinent lines of the read-aloud and/or refer to specific images. Encourage students to answer in complete sentences. Model answers using complete sentences for students.

1. *Literal* What is the main topic, or main idea, of Annie's letter today?
  - The main idea of Annie's letter today is predicting the weather, meteorology, telling about the job of a meteorologist, etc.
2. *Literal* What does a meteorologist do?
  - A meteorologist studies and predicts the weather.
3. *Evaluative* If a meteorologist says it is going to rain today, how will that prediction affect your plans for the day?
  - I will plan to spend time indoors.

How will his/her prediction affect what will you wear?

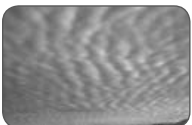
  - I will wear a raincoat and take an umbrella with me if I go outdoors.
4. *Inferential* How does a weather satellite help a meteorologist make good predictions about weather?
  - A weather satellite takes pictures of the weather from space and sends them to the meteorologist so he/she can see what kind of weather is coming.
5. *Evaluative* What is the most important part of a meteorologist's job?
  - The most important part of a meteorologist's job is to keep people safe by warning them when bad weather is coming.
6. *Inferential* What is one way you can tell what the weather will be like without listening to a meteorologist?
  - You can tell what the weather will be like by looking at the clouds.



← Show image 8A-7: Cumulus clouds



← Show image 8A-8: Cirrus clouds



← Show image 8A-9: Stratus clouds

7. *Evaluative* [Invite different students to describe the clouds they see in the images. Have students repeat the name of each type of cloud with you.]

- Cumulus clouds look round and puffy, cirrus clouds look thin and wispy, and stratus clouds look like a white blanket across the sky.

How are these three types of clouds similar and different?

- Both cumulus clouds and stratus clouds create rain, but the cumulus clouds can turn into a thunderstorm. Cirrus clouds are high up in the sky, but stratus clouds are lower in the sky.

[Please continue to model the *Think Pair Share* process for students, as necessary, and scaffold students in their use of the process.]

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your partner and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

#### Sentence Frames

Have you ever heard a meteorologist predict the weather? (Yes/No)

Predicting the weather is important to me because . . .

One time I listened to the meteorologist and then I . . .

8. *Evaluative Think Pair Share*: Why is predicting the weather important to you?
9. After hearing today’s read-aloud and questions and answers, do you have any remaining questions? [If time permits, you may wish to allow for individual, group, or class research of the text and/or other resources to answer these remaining questions.]

#### **Word Work: Warning**

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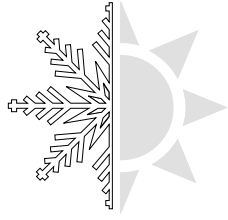
1. In the read-aloud you heard, “The most important part of a meteorologist’s job is to help save lives by *warning* people when severe weather is on the way.”
2. Say the word *warning* with me three times.
3. *Warning* means telling someone in advance that danger is near. Other ways to say *warning* are *warn* or *warns*.
4. I remind my brother to be safe when crossing the street by warning him to look both ways before he crosses.
5. What is something you would warn a friend not to do? Try to use the word *warning* when you tell about it. [Ask two or three students. If necessary, guide and/or rephrase students’ responses: “I would tell my friend not to \_\_\_\_\_ by warning him/her . . .”]
6. What’s the word we’ve been talking about?

Use a *Making Choices* activity for follow-up. Directions: If any of the things I say is an example of a warning, stand up and say, “That is a warning.” If any of the things I say is not an example of a warning, stay seated and say, “That is not a warning.”

1. If you eat too much ice cream, you’ll get a stomachache!
  - That is a warning.
2. Come sit on the grass. It is soft.
  - That is not a warning.
3. Don’t go outside! There are dark storm clouds!
  - That is a warning.
4. What would you like for dinner?
  - That is not a warning.
5. Don’t touch the pan! It is hot!
  - That is a warning.



**Complete Remainder of the Lesson Later in the Day**



# Meteorology

8B

## Extensions

15 minutes

### ↔ Multiple Meaning Word Activity

#### *Sentence in Context: Record*

**Note:** You may choose to have students hold up one, two, or three fingers to indicate which image shows the meaning being described, or have a student walk up to the poster and point to the image being described.

1. [Show Poster 5M (Record).] In the read-aloud you heard the word *record*, as in “The weather *record* is kind of like a weather diary: it lists what the weather was like on that day in previous, or past, years.” Here, *record* means a written report of an event. Which picture shows this?
  - 1
2. *Record* can also mean other things. *Record* can mean a music disc. Which picture shows this?
  - 3
3. *Record* can mean a performance that is the best of its kind. Which picture shows this?
  - 2
4. Now with your partner, make a sentence for each meaning of *record*. Try to use complete sentences. I will call on some of you to share your sentences.

#### **Weather Report**

- Tell students that they are going to pretend to be a weatherperson on the news.
- Remind students that a weatherperson on the news is often a meteorologist, meaning they study weather patterns and try to predict, or guess, what the weather is going to be like.
- Tell students that the class has been keeping track of the weather in their area in their *Class Weather Diary*, similar to the record of weather kept by a meteorologist.

- Review the *Class Weather Diary* for a couple of minutes and come up with a prediction of what they think the weather is going to be like tomorrow and a couple of days from now.
- Have a few volunteers stand in front of the class to present their predictions like a weatherperson does on the news.

[You may wish to have students continue recording the weather in their own weather diaries using Instructional Master 1B-1 from the *Tell It Again! Read-Aloud Anthology for Seasons and Weather*.]

### **Domain-Related Trade Book**

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- Refer to the list of recommended trade books in the Introduction and choose an informational text about meteorology or clouds to read aloud to the class.
- Explain to students that the person who wrote the book is called the author. Tell students the name of the author. Explain to students that the person who makes the pictures for the book is called the illustrator. Tell students the name of the illustrator. Show students where they can find this information on the cover of the book or the title page.
- As you read, use the same strategies that you have been using when reading the read-aloud selections—pause and ask occasional questions; rapidly clarify critical vocabulary within the context of the read-aloud; etc.
- After you finish reading the trade book aloud, lead students in a discussion as to how the information in this book relates to the read-alouds in this domain.