

Earth's Weather

Lesson 1 Different Kinds of Weather

Lesson 2 Weather Patterns

Lesson 3 Seasons

Lesson 4 Severe Weather

Next Generation Science Standards

K-ESS2-1 Use and share observations of local weather conditions to describe patterns over time. **K-ESS3-2** Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather. **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. **K-2-ETS1-2** Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. **K-2-ETS1-3** Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.



Go online to access
your digital resources



VIDEO



eTEXT



INTERACTIVITY



SCIENCE SONG



GAME



ASSESSMENT

The Essential Question

How does the weather change?

Show What You Know


What is your favorite weather?
Do you know what causes it?
Tell a partner what you know.

Chasing Storms

How does weather change when a storm is coming?



Hi! My name is Ms. Lopez.

I am a storm chaser. I follow and study storms. Our town is planning a summer festival. We want to make sure people stay safe if there is a storm. Help me make a safety poster. The poster needs to tell people how to stay safe in storms. Follow the path. Do each activity with a **QUEST CHECK**  **OFF** .

Quest Check-In 1

Lesson 1

Use what you learned about types of weather.

Next Generation Science Standards

K-ESS2-1 Use and share observations of local weather conditions to describe patterns over time.

K-ESS3-2 Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.



VIDEO

Watch a video about a storm chaser.

Quest Check-In 3

Lesson 3 ◆

Learn more about weather and storms in different seasons.

Quest Check-In Lab 4

Lesson 4 ▲

Make a tool that measures wind. Describe how wind changes. Tell how people use wind to study storms.

Quest Check-In 2

Lesson 2 ●

Observe the weather. Predict weather patterns where you live.

Quest Findings

Complete the Quest! Make a safety poster that tells people how to stay safe in a storm.

How does the **weather change** during the day?

How can you use weather information to plan your day?

Procedure

- ☐ 1. Look at the School Day Forecast Sheet. Tell how the temperature changes.
- ☐ 2. Observe the temperature and weather. Record your data.

Analyze and Interpret Data

3. **Report** Tell how the temperature changes during the day.
4. Look at your data.
Tell a partner what you notice.

Materials

- School Day Forecast Sheet

Science Practice

You **get information** to help answer a scientific question.



Main Idea and Details

The main idea is what the sentences are about. Details tell about the main idea.



GAME

Practice what you learn with the Mini Games.

A Stormy Day

There was a big storm. The clouds were dark and gray. The wind blew hard. It rained a lot. There were puddles everywhere. What a storm!

✓ Reading Check

Main Idea

and Details Circle the main idea. Underline at least two details.



Lesson 1

Different Kinds of Weather



VIDEO

Watch a video about different kinds of weather.

Vocabulary

snow
temperature

I can describe different types of weather.

K-ESS2-1, K-ESS3-2

Jumpstart Discovery!

What is the weather like today? Tell a partner two words that describe today's weather.

How can you make it rain?

Many storms have rain. How can you make a model of rain?

Procedure

- ☐ 1. Fill the jar about 2/3 full with water.
- ☐ 2. Put shaving cream on top of the water.
- ☐ 3. Put several drops of colored water on the shaving cream.
- ☐ 4. Tell a partner what you observe.

Analyze and Interpret Data

5. **Explain** Why do you think it rained in the jar? Tell a partner.

Materials

- jar
- tap water
- shaving cream
- colored water
- eye dropper or pipette

Science Practice

You **develop and use models** to explain phenomena.



Temperature

Temperature tells us how hot or cold it is outside.

When it is hot outside, you can play in the water.

When it is cold outside, you wear a jacket and a hat.

Identify Underline something you can wear when it is cold.



snow

cold



INTERACTIVITY

Go online to learn more about how weather can change.

Sunny and Not Sunny

Some days the sun shines bright.

It is sunny.

Sometimes, it is cloudy.
We do not see the sun.

On other days, it rains.
If it is cold enough, it will snow.

Snow is frozen water that falls from the sky.



Quest Connection



What can Ms. Lopez tell people about when it might snow?

Wind

Wind is moving air.

There is a lot of wind on some days.

There is only a little wind on other days.

It can be windy on a sunny day.

It can be windy on a rainy day.

It can be windy on a snowy day.

Literacy ► Toolbox

Main Idea and Details The main idea is what the text is about. This text is about wind. Details tell more about the main idea. Underline two details.





Weather Words

The pictures show different kinds of weather.

Match the weather words to the correct pictures.

Sunny Cloudy Rainy





INTERACTIVITY

Go online to learn more about how to solve design problems.

Don't Blow Away!

Some people use a tent at parks or the beach. It keeps the sun off them. The tent can blow over in the wind. It can even blow away!

Can you build a tent that will not blow away?

Build It

- ☐ Decide which materials to use.



- ☐ Decide what each material will do. Use the table to help you plan.
- ☐ Build your tent.
- ☐ Test your tent using a fan.

Observations

Material	What it will do

What happened when you tested your tent?

Tell a partner how you can make your tent better.



Lesson 2

Weather Patterns



VIDEO

Go online to learn more about weather patterns.

Vocabulary pattern

I can observe that weather changes from day to day.

I can observe patterns in the weather.

K-ESS2-1, K-2-ETS1-2

Jumpstart Discovery!

Act out some things you can do when it rains.

How can you **collect** rain?

How can you measure how much rain fell?

Procedure

- ☐ 1. Use the materials.
- ☐ 2. Make a rain collector. Make measurement markers.
- ☐ 3. Put your rain collector outside. Record your data on the Rain Collection Sheet.

Analyze and Interpret Data

- 4. **Record** Answer the questions on the Rain Collection Sheet.

Materials

- 2-liter plastic bottles
- pebbles
- water
- Rain Collection Sheet

Science Practice

You can **design a solution** to answer a question or solve a problem.



Sun or Rain

Weather happens in patterns.

A **pattern** is something that happens over and over.

Weather follows patterns during a year.

There are often many sunny days in summer.

There are often many cloudy and rainy days during fall.

The same patterns happen each year.

Crosscutting Concepts ▶ Toolbox



Patterns Label each picture with the season you think it shows.





☒ Reading Check Main Idea

and Details Underline the main idea on this page.



INTERACTIVITY

Go online to learn more about recording the weather.

Hot or Cold Weather

It is usually hot for a few months in the year.

It is colder other months.

Some months it is not too hot or too cold.



Quest Connection



Tell how Ms. Lopez uses patterns to predict temperature.

Weather in Different Places

Different places have different weather.

Some places have hot weather all year.

Some places have more rain than other places.

Some places have snow for most of the year.



Visual Literacy

Both pictures are from the same day. Tell how the weather patterns are different in these two places.





Predict the Weather

1. Complete the table.

What will the weather be in different months?

Where I live

	Example	Now	in 1 month	in 2 months
Month	January			
Temperature	Cold			
Types of Weather	Snow, ice			
Things People Do	Sled			

2. What do you think the weather will be like in four months?



Lesson 3

Seasons



VIDEO

Watch a video about seasons.

Vocabulary

season

I can describe the seasons.

K-ESS2-1

Jumpstart Discovery!

Think about your favorite season. Tell a partner some things you like to do during that season.

What is the **weather** like in different **seasons**?

How does the weather change in different seasons?

Materials

- 4 index cards

Science Practice

When you **compare and contrast**, you tell how things are the same and different.

Procedure

- ☐ 1. Draw a picture of a season on a card.
- ☐ 2. Write words about that season on the back of the card.
- ☐ 3. Make a card for each season.

Analyze and Interpret Data

- 4. Compare** your cards.

Tell how your cards are the same and different.



Different Seasons

Many parts of the world have four **seasons**.

Each season has different weather.

Math ▸ Toolbox



Measure You can use many different tools to measure snowfall. Name some tools you might use.

It is cold in the winter.

There are no leaves on trees.

✓ Reading Check

Main Idea

and Details Circle a detail about something that happens in spring.

In the fall, it gets cooler.

Leaves fall off the trees.



INTERACTIVITY

Go online to learn more about how weather changes with the seasons.

It gets warmer in the spring.

Plants start to grow.

Quest Connection



Choose a photo.
Tell how Ms. Lopez
might describe
weather in that photo.

In the summer, it is hot.

Plants keep growing.



Seasonal Changes

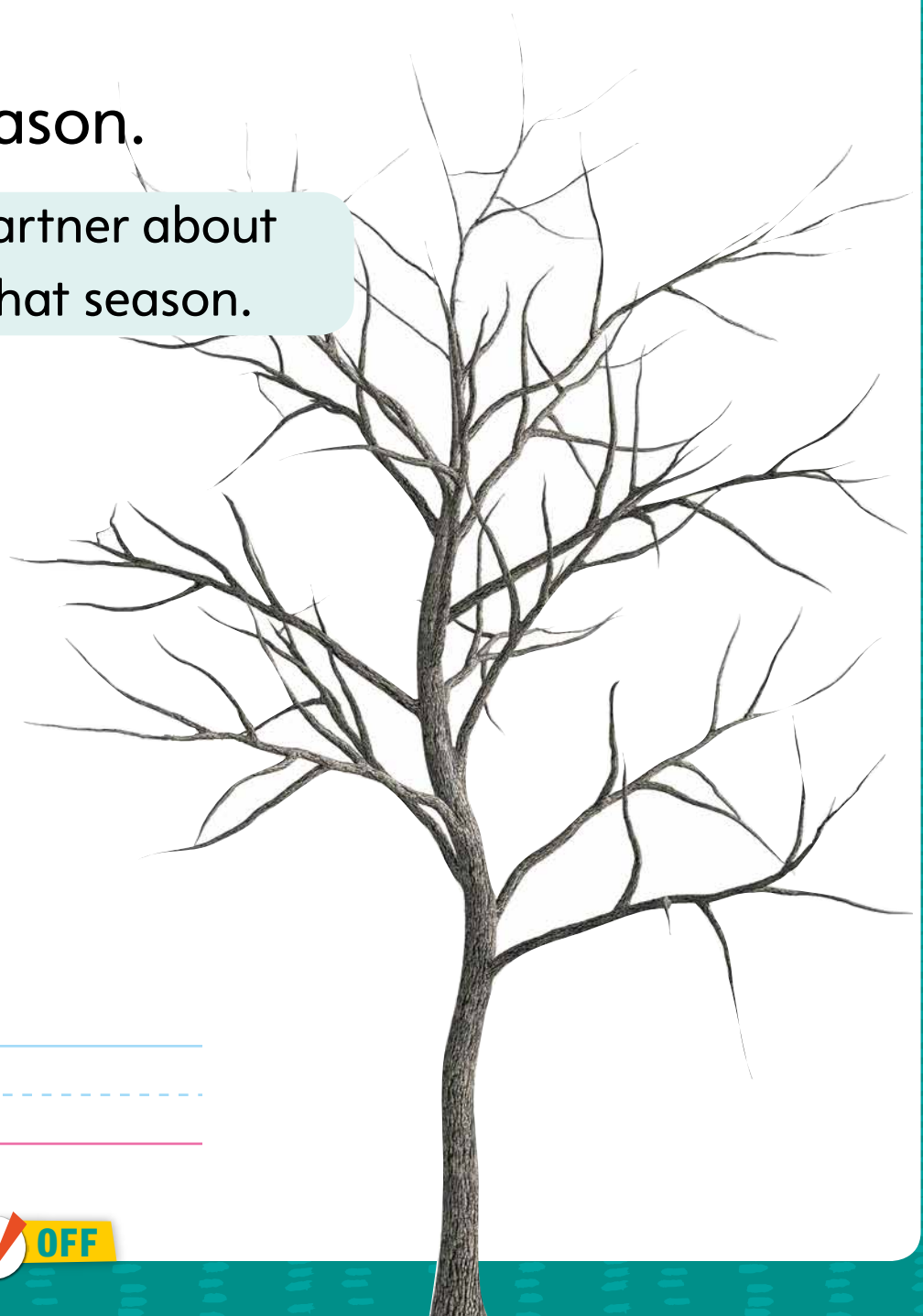
Choose a season.

Draw a scene of that season.

Draw leaves on the tree to match the season.

Label the season.

Explain Tell a partner about the weather in that season.



Thundersnow

Boom! What was that?
Thunder during a snow
storm?

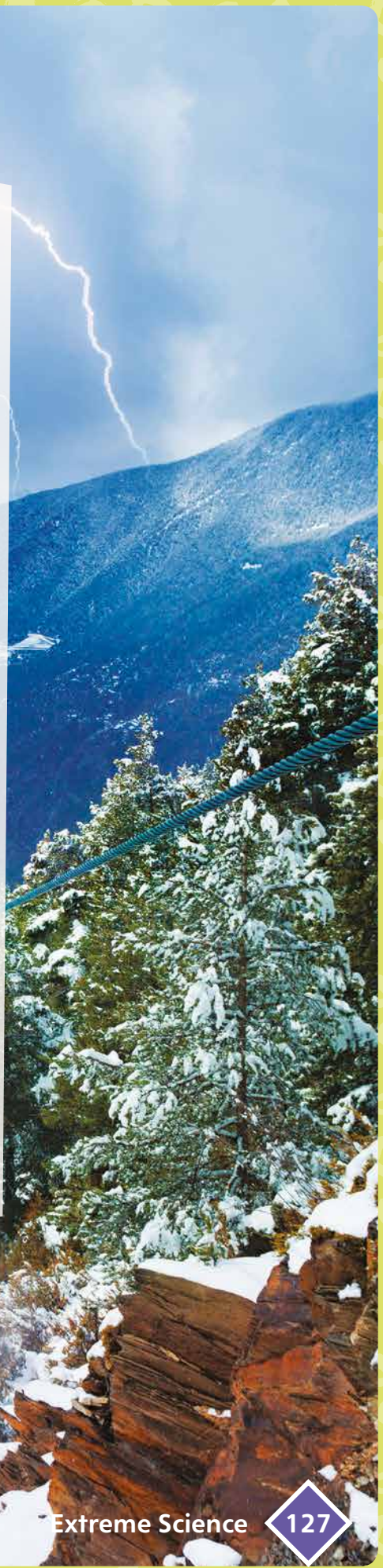
Sometimes you hear
thunder and see lightning
when it rains.

Sometimes, there is
thunder and lightning
when it is snowing.

It is cold outside.

This is called thundersnow.

Explain Tell how thundersnow is
different from a regular
thunderstorm?





Lesson 4



VIDEO

Watch a video about storms.

Severe Weather

Vocabulary

thunderstorm
tornado
hurricane

I can understand why it is important to prepare for severe weather.

K-ESS2-1, K-ESS3-2, K-2-ETS1-2

Jumpstart Discovery!

Some scientists tell us when big storms are coming. What questions can you ask the scientists about what they do?

What does a **storm** look like?

How can you make a model of a storm?

Materials

- jar with lid
- dish soap
- water
- vinegar
- glitter

Science Practice

You **use models** to find out how something happens in real life.

Procedure

- ☐ 1. Put all the materials in the jar.
- ☐ 2. Swirl the jar. Observe what happens. Draw what you see on a sheet of paper.

Analyze and Interpret Data

- 3. Explain** What happened to the glitter when you swirled the jar?

Thunderstorms and Tornadoes

A **thunderstorm** is a storm with lightning, thunder, and rain.

Some thunderstorms make tornadoes.

A **tornado** is a type of storm.

It has very fast winds that turn in a circle.

The winds can pick things up and move them.



tornado

Explain How can a tornado pick up things?

thunderstorm

Hurricanes

Hurricanes are big storms that form over the ocean.

They can move onto land.

They have strong winds and a lot of rain.

Hurricanes can last for many days.

Quest Connection



Tell why Ms. Lopez might want to warn people about hurricanes.

hurricane

Be Prepared

Storms can be dangerous.

The power can stop working. Trees can fall.

People should have flashlights and batteries.

They need to find shelter during a storm.



INTERACTIVITY

Go online to learn more about tools scientists use to predict weather.



✓ Reading Check

Main Idea and

Details Circle a reason why it is important to get ready for storms.



Weather Watching

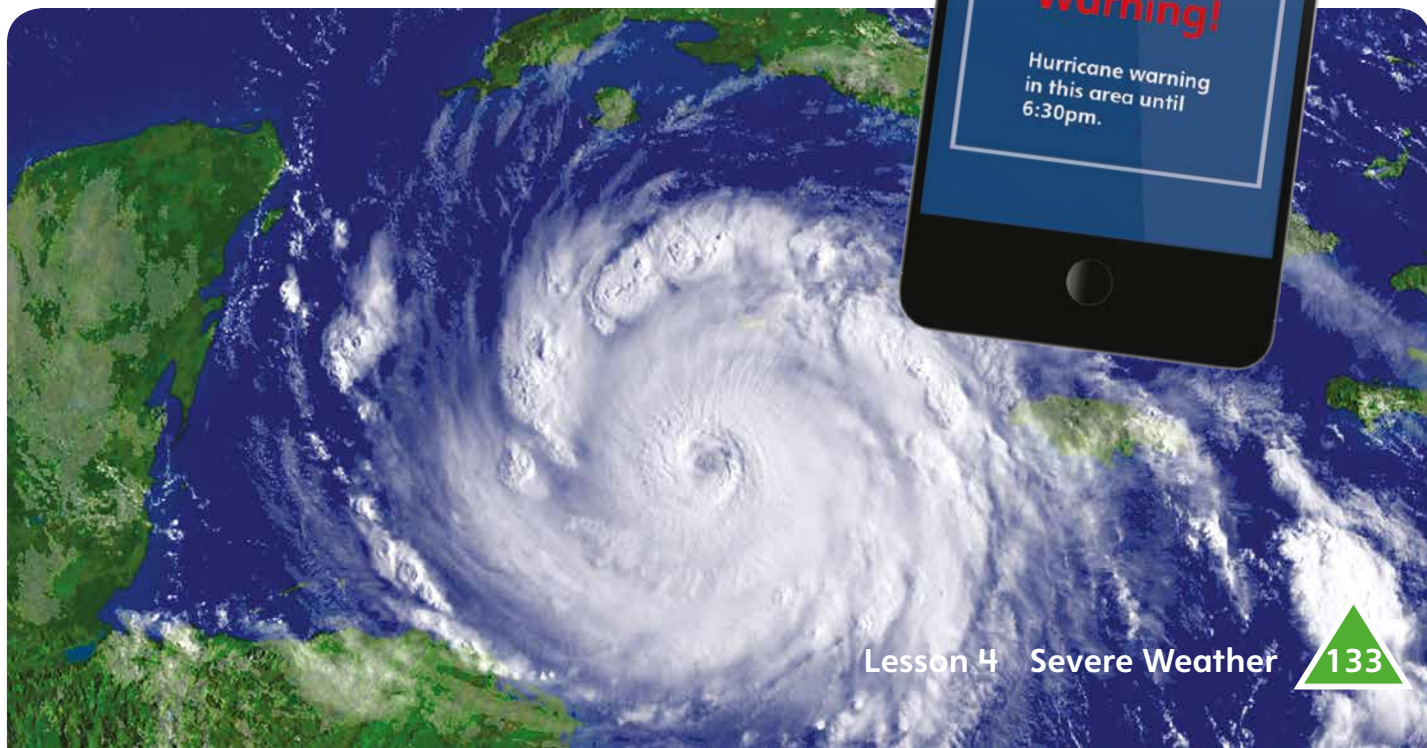
Weather scientists have tools that help them know when a storm will happen. They can watch how storms move.

Weather scientists can warn people on TV or on the radio.

They can even send messages to cell phones.

Crosscutting Concepts ▶ Toolbox

Cause and Effect A cause is why something happens. An effect is what happened. Tell a partner some effects of storms.



How does the wind *move*?

Materials

- pinwheel
- electric fan

Storm chasers measure weather. How can you measure the wind?



Science Practice

You **develop and use models** to study phenomena.

Procedure

- ☐ 1. Use the materials.
Collect data on wind.
- ☐ 2. Make a plan. Show your teacher.
- ☐ 3. Put your observations in the table.



Do not stick anything in the fan.





Fan speed	What happened
Low	
High	

Analyze and Interpret Data

4. **Describe** What happened when the speed of the fan changed?

5. **Apply** How can you use the tool to warn people about a storm?



Go online to learn more about severe weather.

Chasing Storms

How does weather change when a storm is coming?

Your town is planning an outdoor festival. There may be severe weather. Make a safety poster. Include questions people have about severe weather. Show what people can do to stay safe.

Show What You Found

Tell a partner something we should put on a safety poster to warn people about storms.



Storm Chaser

Storm chasers study all kinds of storms. Some storm chasers also talk about weather on TV. Storm chasers take pictures of storms.

Some storm chasers fly into hurricanes on airplanes.

What kind of storm would you study if you were a storm chaser?



**The
Essential
Question**

How does the weather
change each day?




Tell a partner what you
learned about how the
weather can change.

1. Which word describes something that happens over and over?
 - a. Pattern
 - b. Weather
 - c. Season
 - d. Chart
2. What may fall when the weather is so cold that water freezes?
 - a. Rain
 - b. Wind
 - c. Snow
 - d. Leaves

3. In which season do leaves fall off trees?

- a. winter
- b. spring
- c. fall
- d. summer

4. Look at the weather report.
Then, fill in the chart.

	Sunday	Monday	Tuesday
			
How many days have sun?			
How many days have rain?			

Read this scenario and answer the questions.

Akiko wakes up in the morning and gets ready for school. He needs to wear a jacket. During recess, he does not need a jacket. He notices the same thing the next day.

When he gets home from school, he sees a weather report on TV.

Friday



33° C

Saturday



33° C

Sunday



25° C

1. How did the weather change between morning and recess?

2. How many days in the weather report show hot weather?

a. 0

b. 1

c. 2

d. 3

3. Name something Akiko might wear outside on Sunday.

4. How will the weather change from Friday to Saturday?

a. It will get hot.

b. There will be rain.

c. It will get cloudy.

d. There will be a storm.

What is the **weather** like?

Scientists record what the weather is like each day. This helps them learn how the weather can change. You can do this, too.

Materials

- Weather Data Sheet
- crayons

Procedure

- ☐ 1. **Observe** the weather each day.
- ☐ 2. Record your observations on the Weather Data Sheet. You can use weather words or draw pictures.

Science Practice

You **observe** to identify patterns.



Analyze and Interpret Data

3. **What** pattern do you notice in your observations?

4. **Compare** your observations with those of a partner. What do you notice?

5. **How** would your observations be different if you observed the weather in another season?
