

Read the science articles. Then answer the questions that follow.

Signs in the Sky

by Michelle August



A halo around the moon can mean that rain is coming.

- 1 Today, every news channel has a weather person. They can predict the weather for days, or even weeks in advance. The science of meteorology involves using special devices to track weather systems. However, long before people had this kind of technology, they could predict the weather by observing the natural world.
- 2 For as long as people have grown their own food, they have wanted to predict the weather. Knowing the signs that told of coming rain or storms was important for survival. Over many centuries, human beings learned to watch the sky for signs of coming weather. They even made up special sayings to help them remember the signs. Today, scientists have discovered something fascinating. Some of those old-fashioned sayings were right!

Red sky in the morning, sailors take warning. Red sky at night, sailors' delight.

- 3 This is a weather saying that is at least half right. Storm systems usually move from west to east. A red sunset in the west usually means that a high pressure system, or dry weather, is coming. Sunrises, on the other hand, can be red for a variety of reasons. Today, weather satellites track the movement of storms. But it is still fun to remember the old saying!

Ring around the moon, rain's coming soon.

- 4 Sometimes the moon appears to have a ring around it. This occurs when there are high clouds in the sky that contain water and ice. When the moonlight shines through the tiny pieces of ice, a halo appears. That same water and ice can soon fall as rain. This old saying is another one that "rings" true!

When clouds appear like rocks and towers, the earth's refreshed with frequent showers.

- 5 Have you ever seen clouds that look thin and spread out? These are called cumulus clouds and rarely carry rain. Other clouds are called cumulonimbus clouds. Strong winds cause these clouds to grow tall like towers. Heavy water in the clouds makes them look dark like rocks. These clouds almost always bring storms.
- 6 Today, we have all kinds of technology to predict the weather. Weather satellites travel into space and weather software tracks storm patterns. But if all else fails, just look at the sky. The signs are out there!



Storm clouds like these can bring wind and rain.



MAPPING Sunshine and Rain



by Krista O'Connell

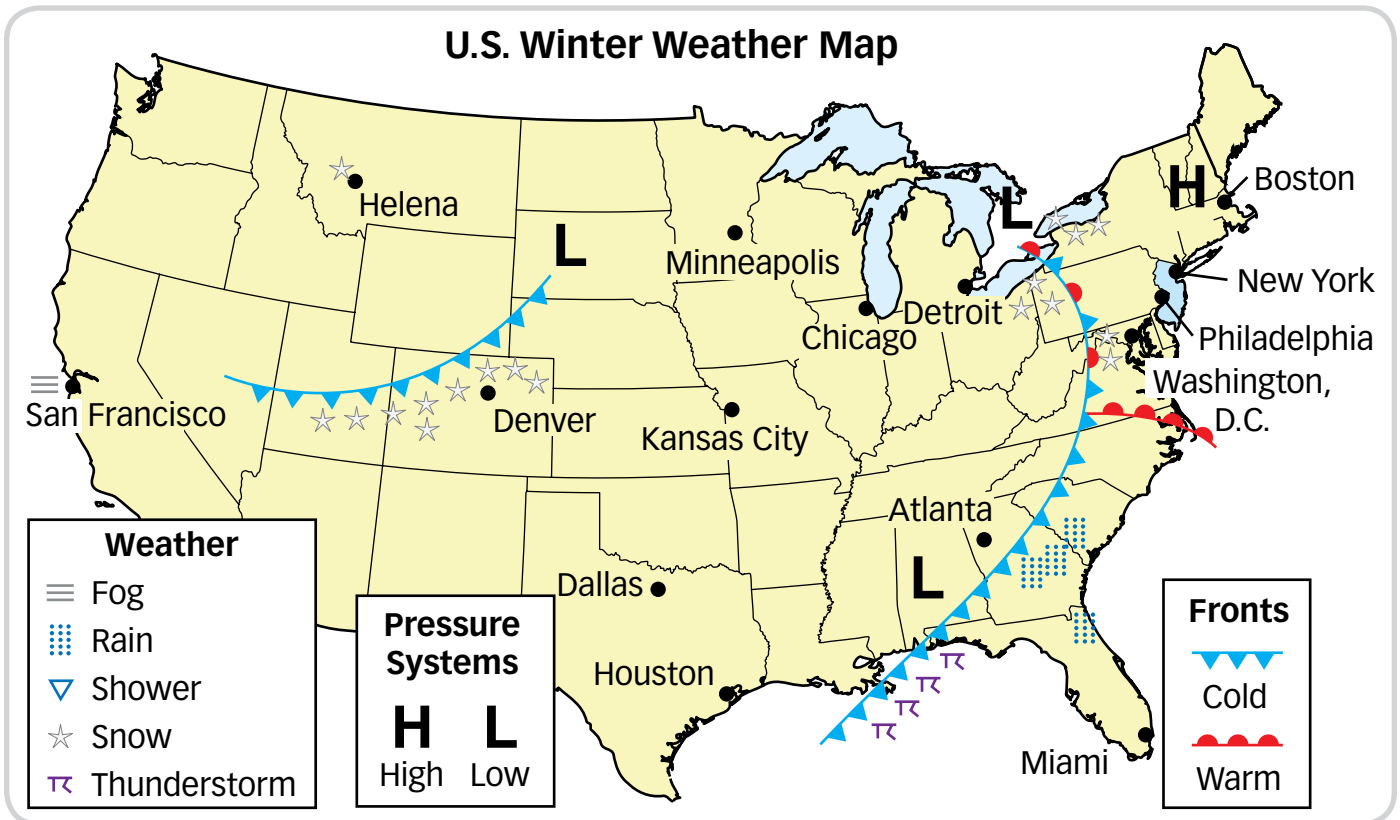
- 1 Weather is important to all people. A farmer's field can be ruined if the weather is hot and dry. A picnic can be spoiled by rain. People like to know what the weather will be like tomorrow, three days from now, and even next week. This is now possible thanks to the science of meteorology.

The Weather Map

- 2 One of the tools used to predict the weather is a weather map. Scientists use special machines to create these maps. These machines are used to collect information about conditions in the sky.

What Weather Maps Can Tell Us

- 3 A weather map might look complicated. But the truth is that most people can make weather predictions using a map like the sample one at the top of the next page. You just need to know what the shapes, symbols, and letters mean. Look at the map as you read along.
- 4 First, a weather map shows the places where weather fronts are found. Two main types of fronts are warm fronts and cold fronts. Both form when cooler air and hotter air meet. The map shows the symbols for each type of front. Warm fronts often bring rain and clouds. Cold fronts bring clear skies and cooler weather.
- 5 Second, a weather map shows any weather systems in the area. These can be high pressure or low pressure systems. They are shown on the map by the letters H and L. Both types move from west to east. High pressure systems often result in nice, sunny weather. Low pressure systems are likely to cause rain.



- 6 Third, maps show what type of weather these fronts and systems will cause. The map shows that the cold front in Denver is expected to bring snow. The cold front between Atlanta and Miami will likely bring rain and thunderstorms.

Replacing Signs in the Sky with Sound Science

- 7 It's true that looking into the sky can give some clues about what the weather will be in the near future. Most of us have seen the dark clouds that fill the sky before a thunderstorm. The color of the sky and the look of the moon can provide other clues.
- 8 People no longer have to make a guess about the weather. There are now maps like the one above as well as other tools. These can help meteorologists¹ make very exact weather forecasts. They can also help predict the weather well before it ever arrives.

¹ **meteorologists:** scientists who study and predict weather

Think

- 1** Which of the following sentences from “Signs in the Sky” **best** describes the photograph on page 341?
- A** “When the moonlight shines through the tiny pieces of ice, a halo appears.”
 - B** “Some of those old-fashioned sayings were right!”
 - C** “Strong winds cause these clouds to grow tall like towers.”
 - D** “Weather satellites travel into space and weather software tracks storm patterns.”

- 2** Read these two sentences from paragraph 3 of “Signs in the Sky.”

A red sunset in the west usually means that a high pressure system, or dry weather, is coming.

Sunrises, on the other hand, can be red for a variety of reasons.

How are these two sentences connected?

- A** The sentences contrast red sunsets and red sunrises.
- B** The sentences compare dry weather to high pressure systems.
- C** The sentences explain steps in a process.
- D** The sentences explain the reasons for sunsets and sunrises.

- 3** Circle the boxed words that **best** complete the sentences.

High clouds in the sky contain water and

gas
ice

. When

moonlight
sunlight

 beams through the clouds, it looks like there is a ring around the moon.

- 4 Place the events in the correct order by marking an X under number 1, 2, 3, or 4.

	1	2	3	4
The clouds fill with heavy water.				
The clouds bring storms to the area.				
Strong winds come and make cumulonimbus clouds grow like tall towers.				
The heavy water makes them look like dark rocks.				

- 5 On the map, look at the low pressure system next to Denver. Now reread paragraph 6 of "Mapping Sunshine and Rain." What kind of weather is expected in Denver because of this low pressure system?

- A fog
- B snow
- C rain
- D thunderstorms

- 6 Read the sentences from paragraph 4 of "Mapping Sunshine and Rain."

Both form when cooler air and hotter air meet.

Warm fronts often bring rain and clouds.

Cold fronts bring clear skies and cooler weather.

How are these sentences connected?

- A The sentences describe how warm fronts cause cold fronts.
- B The sentences describe three steps in a process.
- C The sentences compare and contrast clouds and cooler weather.
- D The sentences compare and contrast warm fronts and cold fronts.

- 7** Read this sentence from paragraph 2 of “Mapping Sunshine and Rain.”

These machines are used to collect information about conditions in the sky.

What does the word conditions mean in this sentence?

- A** what machines are in the sky
 - B** what maps say about the sky
 - C** what weather is going on in the sky
 - D** what things are collected from the sky
- 8** How does the map in “Mapping Sunshine and Rain” help the reader understand the passage?
- A** by showing the kinds of weather that happen around fronts
 - B** by showing how a weather map is made by special machines
 - C** by showing why high pressure systems form in some areas and not others
 - D** by showing how a winter weather map is different from a summer weather map
- 9** How are paragraphs 4–6 of “Mapping Sunshine and Rain” connected?
- A** They tell the steps of how to read a weather map.
 - B** They tell the effects of both warm and cold fronts.
 - C** They tell how different maps compare with each other.
 - D** They tell why weather systems are formed in certain areas.
- 10** Which key detail can you find in **both** passages?
- A** A ring around the moon shows that rain is coming.
 - B** Weather systems move from west to east.
 - C** Warm fronts often bring rain and clouds.
 - D** A star symbol is used to stand for snow.

- 11** This question has two parts. First answer Part A. Then answer Part B.

Part A

How are the main ideas of “Signs in the Sky” and “Mapping Sunshine and Rain” alike?

- A** They are both about tools a meteorologist uses.
- B** They are both about tracking pressure systems.
- C** They are both about old-fashioned weather sayings.
- D** They are both about predicting weather.

Part B

Choose one sentence from “Signs in the Sky” and one sentence from “Mapping Sunshine and Rain” that support the answer to Part A.

- A** “Heavy water in the clouds makes them look dark like rocks.” (“Signs in the Sky”)
- B** “However, long before people had this kind of technology, they could predict the weather by observing the natural world.” (“Signs in the Sky”)
- C** “They even made up special sayings to help them remember the signs.” (“Signs in the Sky”)
- D** “These [maps] can help meteorologists make very exact weather forecasts.” (“Mapping Sunshine and Rain”)
- E** “A picnic can be spoiled by rain.” (“Mapping Sunshine and Rain”)
- F** “Scientists use special machines to create these maps.” (“Mapping Sunshine and Rain”)

- 12** Which fact can a person learn by reading **both** passages?

- A** Rain and clouds are the result of warm fronts.
- B** Weather maps are better than sayings for predicting weather.
- C** Red sunrises tell people that bad weather is coming.
- D** Predicting weather is important for growing crops.



Writing Prompt How are the main ideas of “Signs in the Sky” and “Mapping Sunshine and Rain” different? Be sure to include key details from the text and the photos of both passages to support your answer.

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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