Date _____ Period _____ Name _____

The Nature of Storms

Chapter Preview

Before you read the chapter, use the "What I Know" column to list three things you know about the nature of storms. Then list three questions you have about the nature of storms in the "What I Want to Find Out" column.

K What I Know	W What I Want to Find Out
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____

SCIENCE JOURNAL

Think about the Launch Lab you did to replicate lightning and record your response in this science journal.

What happened when the x-side of the balloon was held over the paper? What happened when the opposite side of the balloon was held over the paper?

_____

_____

_____

How does this relate to lightening during an electrical storm?

_____

_____

Name _____

The Nature of Storms

SECTION 1 Thunderstorms

MAIN IDEA — **DETAILS**

Read *the objectives on the first page of Section 1. List three questions that come to mind.*

1. _____
2. _____
3. _____

Review Vocabulary

Use your text to define the following term.

latent heat _____

New Vocabulary

Use your text to define each term.

air-mass thunderstorm _____

mountain thunderstorm _____

sea-breeze thunderstorm _____

frontal thunderstorm _____

stepped leader _____

return stroke _____

Name _____

SECTION 1 Thunderstorms (continued)

MAIN IDEA	DETAILS
How Thunderstorms Form *Use with pages 344–345.*	**Summarize** *three conditions that must be met for a thunder storm to occur.* 1. _____ 2. _____ 3. _____
Air-Mass Thunderstorms *Use with page 346.*	**Draw** *diagrams that explain the formation of a mountain thunderstorm and a sea-breeze thunderstorm. Use Figure 3 in your text to help you.*
Frontal Thunderstorms *Use with page 346.*	**Analyze** *Figure 1 in your text. Use the diagrams you drew above to explain the reason for the placement of the red and orange zones in Figure 1.* _____ _____ **Explain** *frontal thunderstorms by completing the following sentences.* The _____, _____ movement of air in a ____ front can produce a line of thunderstorms. These thunderstorms can occur at _____, because they do not depend on _____. Thunderstorms can also be associated with _____. These thunderstorms are usually fairly _____.

Name _____

SECTION 1 Thunderstorms (continued)

MAIN IDEA	DETAILS
Stages of Developement *Use with page 347.*	**Sequence** *the steps in the process of thunderstorm formation. The first one has been completed for you.* _____ precipitation falls, cooling the air around it 1 air rises vertically, creating updrafts _____ supply of warm, moist air runs out, stopping the updrafts _____ cloud droplet coalesce, until they are so latent they fall as precipitation _____ downdrafts form _____ moisture condenses and releases latent heat _____ nearly equal amounts of updrafts and downdrafts exist with a cumulonimbus cloud **Compare and contrast** *the stages of a thunderstorm. Use Figure 4 to help you make detailed sketches of the cumulus stage, the mature stage, and the dissipation stage. Note similarities and differences between the stages.*

REAL-WORLD CONNECTION

Imagine there is a thunderstorm raging outside. You see the lightning flash long before the thunderclap is heard. Describe how you can estimate the distance to the storm.

Date _____ Period _____ Name _____

The Nature of Storms

SECTION 2 Severe Weather

MAIN IDEA

DETAILS

Scan *Section 2 in your text. Use the checklist below as a guide.*

- Read all the section titles.
- Read all bold words.
- Look at all figures and photos and read their captions.
- Think about what you already know about severe weather and its causes.

Review Vocabulary

Use your text to define the following term.

air mass _____

New Vocabulary

Use your text to define each term.

supercell _____

downburst _____

tornado _____

Enhanced Fujita Tornado Damage scale _____

Academic Vocabulary

Define the following term.

phenomenon _____

Name _____

SECTION 2 Severe Weather (continued)

MAIN IDEA	DETAILS
Severe Thunderstorms *Use with page 350.*	**Sequence** *the steps in the formation of a severe thunderstorm.*

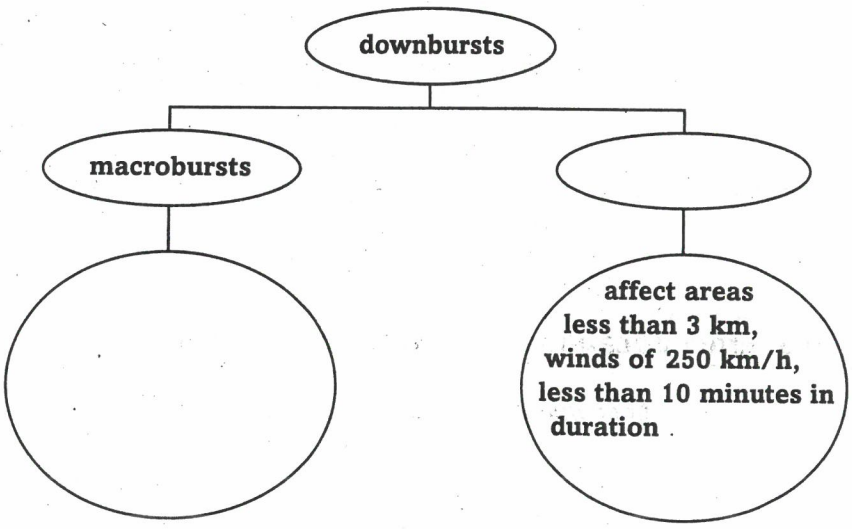
- Strength of storm's updrafts and downdrafts intensifies.
- The cold, high air increases temperature differences.
- A severe storm is formed.
- Cold fronts formed with upper level, low-pressure systems.
- Air becomes more unstable.

1. **Cold fronts formed with upper level, low-pressure systems.**
2.
3.
4.
5.

The Fury of the Wind

Use with page 351.

Organize *information about downbursts in the graphic organizer.*



Name _____

SECTION 2 Severe Weather (continued)

MAIN IDEA	DETAILS
Hail, Floods *Use with page 351.*	**Analogy** *An oyster forms a pearl by putting many layers of shell material over a grain of sand or other material. Tell how the formation of a hailstone is similar to the formation of a pearl.*
Tornadoes *Use with pages 352–353.*	**Define** *Tornado Alley is a real place in the Midwestern United States. This area is more susceptible to tornadoes than other regions of the country. Explain why this is so.* **Model** *tornado formation. Draw a series of pictures to show the formation of a tornado. Use Figure 10 as a guide.*

REAL-WORLD CONNECTION

What if you are fishing from a rowboat in the middle of a lake. You notice the clouds building, getting darker, and then it starts to rain. Are you in danger of being struck by lightning? Explain your answer.

Date _____ Period _____ Name _____

The Nature of Storms

SECTION 3 Tropical Storms

MAIN IDEA — **DETAILS**

Scan *Section 3 of the text. Read the section title, bold words, figures and figure captions. Write three facts you discovered about tropical storms as you scanned the section.*

1. _____
2. _____
3. _____

Review Vocabulary

Use your text to define the following term.

Coriolis effect _____

New Vocabulary

In the left margin, write the terms defined below.

_____ *large, rotating low-pressure storm that gets its energy from the evaporation of warm ocean water and the release of heat*

_____ *calm center of a hurricane*

_____ *strongest winds of hurricane in a band surrounding the eye*

_____ *classification of hurricanes based on wind speed, air pressure, and potential for property damage*

_____ *mound of ocean water driven toward land by hurricane-force winds*

Academic Vocabulary

Define the following term.

depression _____

Name _____

SECTION 3 Tropical Storms (continued)

MAIN IDEA | **DETAILS**

Tropical Cyclones

Use with pages 355–356.

Sequence *the steps in the process of the formation of a hurricane. The first one is done for you.*

_____ disturbances produce more precipitation, more energy is released

1 as water evaporates from the ocean surface, latent heat is stored

_____ the Coriolis effect causes moving air to turn counterclockwise in the northern hemisphere

_____ rising air creates a low pressure area at ocean's surface

_____ latent heat released, when air begins to rise and clouds form

_____ cyclonic rotation of a tropical cyclone

List *the three names used around the world for tropical cyclones, and identify the locations where each is used.*

Name	Locations
A. _____	i. _____
B. _____	i. _____
C. _____	i. _____ ii. _____ iii. _____ iv. _____

Analyze *the formation of tropical cyclones in the outline below.*

I. Two conditions required for a tropical cyclone to form:

A. _____

B. _____

II. Two tropical oceans where tropical cyclones do not form:

A. _____

B. _____

III. Two reasons tropical cyclones do not form in those two places:

A. _____

B. _____

Name _____

SECTION 3 Tropical Storms (continued)

MAIN IDEA | **DETAILS**

Model *a hurricane, as seen from above. Use Figure 14 in your text as a guide. Your drawing should include:*

- descending air
- direction of rotation
- eye
- eyewall
- warm moist air

Classifying Hurricanes

Use with page 358.

Complete *the following sentences.*

A hurricane usually _____ strength as it moves over _____ or _____ because it has no access to the _____ from which it draws its energy. Hurricanes _____ in intensity over their life cycle as they interact with _____.

Hurricane Hazards

Use with pages 356–358.

Analyze *why flooding is an additional hazard of hurricanes by completing the statements.*

Flooding occurs due to _____,

caused by the _____.

Floods will be worse if _____,

because _____.

REAL-WORLD CONNECTION

Hurricanes that form during a new moon are potentially more damaging than those that form during the third quarter of the lunar cycle. Explain why this is true.

_____

_____

_____

Date _____ Period _____ Name _____

The Nature of Storms

SECTION 4 Recurrent Weather

MAIN IDEA — **DETAILS**

Consider *the title of the section. Predict three topics that might be discussed in the section.*

1. _____
2. _____
3. _____

Review Vocabulary

Use your text to define the following term.

Fahrenheit scale _____

New Vocabulary

Use your text to define each term.

drought _____

heat wave _____

cold wave _____

wind-chill index _____

Name _____

SECTION 4 Recurrent Weather (continued)

MAIN IDEA | **DETAILS**

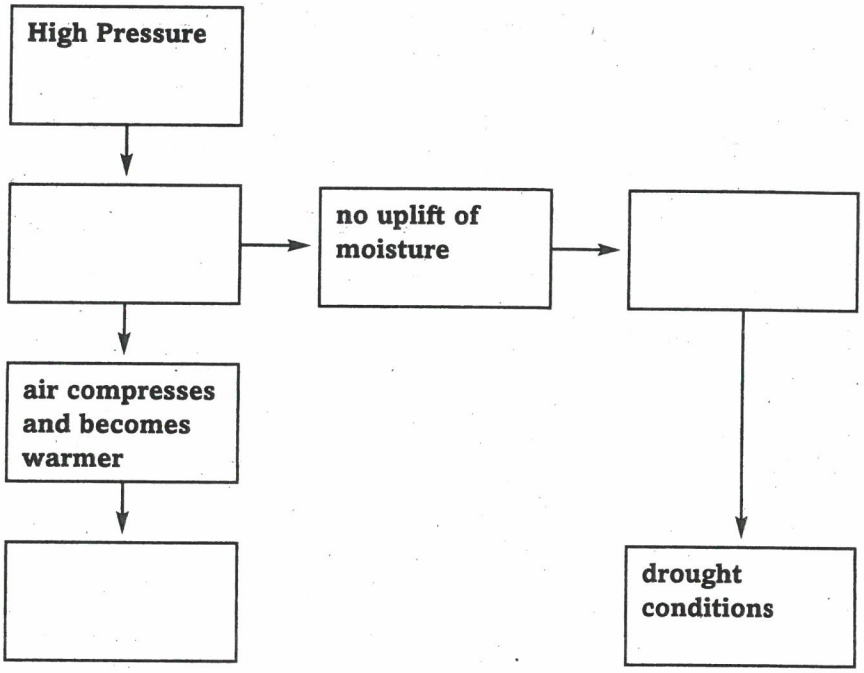
Flood and Droughts

Use with pages 361–362.

Compare and contrast *floods and droughts.*

	Definition	Cause	Impact
Flood			
Drought			

Analyze *the problems associated with large domes of high pressure. Complete the flow chart below.*



Name _____

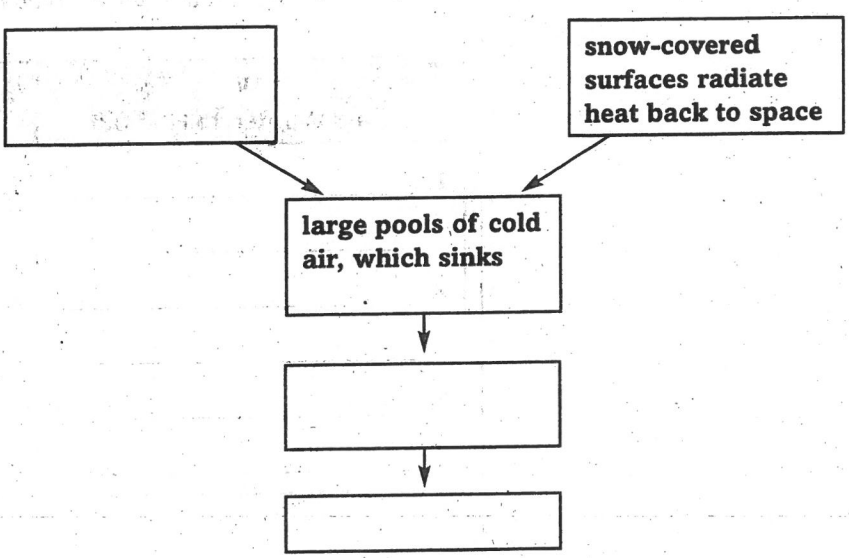
SECTION 4 Recurrent Weather (continued)

MAIN IDEA | **DETAILS**

Cold Waves

Use with pages 362–365.

Analyze *cold waves completing the following flow chart.*



Compare and Contrast *heat waves and cold waves.*

	Heat Waves	Cold Waves
Cause		
Other Factors		

REAL-WORLD CONNECTION

Explain what happens to the water table, zone of saturation, and zone of aeration ofan area during a flood.

_____

_____

_____

Name _____

The Nature of Storms Chapter Wrap-Up

In the "What I Wanted to Find Out" column, copy the questions you listed in the Chapter Preview. In the "What I Learned" column, write down the answers you discovered as you worked through the chapter.

W What I Wanted to Find Out	L What I Learned
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____

Review

Use this checklist to help you study.

- ☐ Study your Science Notebook for this chapter.
- ☐ Study the definitions of vocabulary words.
- ☐ Review daily homework assignments.
- ☐ Reread the chapter and review the tables, graphs, and illustrations.
- ☐ Review the Section Assessment questions at the end of each section.
- ☐ Look over the Study Guide at the end of the chapter.

SUMMARIZE

After reading this chapter, list three things you have learned about storms.

_____

_____

_____