Main Idea

What is weather?
I found this on page ___.

Weather Variables

I found this on page ___.

Details

Define weather.

Weather: ______________________________________________________________________

Describe these variables of weather.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>How It Is Measured</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>thermometer; measured in °C or °F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>barometer; measured in millibars (mb)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>anemometer; measured in mph or km/h</td>
</tr>
<tr>
<td></td>
<td></td>
<td>measured in g/m³</td>
</tr>
</tbody>
</table>

Examine which air temperature can hold the greater amount of water vapor. Indicate it by using < or >.

warm air ( ) cool air

Explain what a relative humidity of 75 percent indicates.

______________________________________________________________________________
Lesson 1 | Describing Weather (continued)

Main Idea

I found this on page __________.

Details

Identify the events that must occur in order for the dew point to be reached.

1. Air temperature ____________________________
2. The amount of moisture in the air ________________

Sequence the steps in cloud formation.

Warm air that contains water vapor ____________________________
and ____________________________

When the cooling air reaches its ____________________________
________________________ condenses and forms ________________

The ________________ are surrounded by thousands
of other ________________. They block and reflect
________________________, which makes them visible as ________________

Classify clouds. Describe the appearance of each type of cloud, and identify the altitude at which it is found.

<table>
<thead>
<tr>
<th>Type of Cloud</th>
<th>Appearance</th>
<th>Altitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumulus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cirrus</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Complete the sentence frame to describe fog.

Fog is a suspension of closest to Earth's surface.

Weather 133
Lesson 1 | Describing Weather (continued)

Main Idea

I found this on page ______.

Details

Identify 4 types of precipitation. Circle the types that reach Earth’s surface as frozen water.

1. ___________________  3. ___________________
2. ___________________  4. ___________________

Label the water cycle in the illustration below, and then explain how the water cycle relates to weather.

Cloud formation
Snow

Surface runoff
Ocean

Connect It A greenhouse owner determines that the plants in the greenhouse need a higher humidity level. How could the owner address this problem?

Weather
Lesson 2  Weather Patterns

Predict three facts that will be discussed in Lesson 2 after reading the headings. Write these facts in your Science Journal.

Main Idea
Pressure Systems
I found this on page ________.

Details
Compare and contrast 2 types of pressure systems by completing the Venn diagram. Include a description of the weather that results from each.

Air Masses
I found this on page ________.

Organize information about air masses.

Definition:

Air Masses

How they form:

How far they extend:
Lesson 2 | Weather Patterns (continued)

**Main Idea**

**Details**

Classify air masses.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arctic</td>
<td>Where they form:</td>
</tr>
<tr>
<td></td>
<td>Characteristics:</td>
</tr>
<tr>
<td>Polar</td>
<td>1. Name:</td>
</tr>
<tr>
<td>(two types)</td>
<td>Where they form:</td>
</tr>
<tr>
<td></td>
<td>Characteristics:</td>
</tr>
<tr>
<td></td>
<td>2. Name:</td>
</tr>
<tr>
<td></td>
<td>Where they form:</td>
</tr>
<tr>
<td></td>
<td>Characteristics:</td>
</tr>
<tr>
<td>Tropical</td>
<td>1. Name:</td>
</tr>
<tr>
<td>(two types)</td>
<td>Where they form:</td>
</tr>
<tr>
<td></td>
<td>Characteristics:</td>
</tr>
<tr>
<td></td>
<td>2. Name:</td>
</tr>
<tr>
<td></td>
<td>Where they form:</td>
</tr>
<tr>
<td></td>
<td>Characteristics:</td>
</tr>
</tbody>
</table>

**Fronts**

1. **Draw and label** a cold front and a warm front. Use blue arrows to indicate the direction of cold air movement and red arrows to indicate the direction of warm air movement.

   - Cold Front
   - Warm Front
Lesson 2 | Weather Patterns (continued)

Main Idea

I found this on page __________.

Details

Define stationary and occluded fronts, and describe the weather associated with each type.

Stationary front: ____________________________________________

Occluded front: ____________________________________________

Summarize why it is useful to understand weather patterns associated with fronts.

I found this on page __________.

Severe Weather

I found this on page __________.

Sequence the three-stage life cycle of a thunderstorm.

Cumulus stage:

Dissipation stage:

I found this on page __________.

Diagram the structure of a tornado. Label these parts in your diagram.

* funnel  * air inflow  * rotating updrafts  * air outflow
Lesson 2 | Weather Patterns (continued)

Main Idea
I found this on page ________.

Details
Sequence the steps in the formation of a hurricane.

Warm, moist air ______ and ______. Water vapor ______ and clouds form. As more air rises, an area of _______ forms over the ocean.

As air _______, a _______ forms. Air begins to turn _______ because of the _______. Winds are between _______.

As air continues to rise and _______, the storm builds to a _______. Winds are greater than _______ but less than _______.

When winds reach _______, the storm becomes a _______.

Identify five examples of severe weather.
1. _______
2. _______
3. _______
4. _______
5. _______

Distinguish weather watches and warnings.
A _______ means that severe weather is possible.
A _______ means that severe weather is already occurring.

Analyze It Town A experiences several days of cold temperatures and steady rain. Town B, which is twenty kilometers east of Town A, experiences rain and warm temperatures during that same time. What weather pattern explains these events?
Lesson 3  Weather Forecasts

Skim Lesson 3 in your book. Read the headings and look at the photos and illustrations. Identify three things you want to learn more about as you read the lesson. Record your ideas in your Science Journal.

Main Idea

Measuring the Weather
I found this on page _______.

Details

Describe the first step in making a weather forecast, and identify three instruments used to measure weather variables.

Step 1: Measure the condition of the ____________ using weather instruments, such as

a. a ________________, which measures air temperature,
b. a barometer, which measures ________________, and
c. an ________________, which measures wind speed.

Identify how scientists measure weather conditions in different parts of the atmosphere.

- Measuring Conditions of the Atmosphere
  - Surface Reports
  - Upper-Air Reports

Compare 2 types of satellite images.

- Visible Light Image
- Infrared Image

Organize information about Doppler radar.

- Doppler is a specialized type of ____________.
- Doppler radar can detect ____________.
- Doppler radar can estimate ____________.
Main Idea

Weather Maps
I found this on page __________.

Details

Identify the types of information displayed on a station model.
1. ________________
2. ________________
3. ________________
4. ________________
5. ________________
6. ________________ and ________________

Contrast isobars and isotherms.

<table>
<thead>
<tr>
<th>Isobars</th>
<th>Isotherms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Identify each symbol found on weather maps.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<tr>
<td>**</td>
<td></td>
</tr>
<tr>
<td>●●</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td></td>
</tr>
</tbody>
</table>
Main Idea

I found this on page ________.

Details

Analyze the weather map. Color a high-pressure area red. Color a warm front yellow. Color an occluded front blue.

Predicting the Weather

I found this on page ________.

Sequence how weather computer models are generated and distributed.

- Government offices exchange information
- Computer model programs solve
- The formulas predict
- Weather maps and forecasts are made available through

Synthesize It

Which type of map would better help you plan next weekend's activities, a station map or a weather map? Explain why.