Skim or scan the heading, boldfaced words, and pictures in the lesson. Identify or predict three facts you will learn from the lesson. Discuss your thoughts with a classmate.

### Main Idea

**Long-Term Cycles**
*I found this on page ________.*

### Details

**Distinguish** four ways scientists learn about past climates.
1. ________________________________
2. ________________________________
3. ________________________________
4. ________________________________

**Compare** an ice age with an interglacial.

Ice age: ________________________________

Interglacial: ________________________________

**Model** the time spanned by Earth’s most recent ice age and interglacial on the time line. Use these labels:
- Ice age begins
- Maximum ice coverage begins
- Holocene interglacial coverage begins

- 2 million years ago
- 20,000 years ago
- 10,000 years ago
- Present day

**Identify** four causes of Earth’s long-term climate cycles.
1. ________________________________
2. ________________________________
3. ________________________________
4. ________________________________
Lesson 2 | Climate Cycles (continued)

Main Idea

Short-Term Cycles
I found this on page ________.

I found this on page ________.

I found this on page ________.

Details

Summarize two causes of short-term climate cycles.

Causes of short-term climate cycles

Interaction between

Diagram the position of Earth and its axis in relation to the Sun during summer and winter in the northern hemisphere.

Summer in the Northern Hemisphere

Winter in the Northern Hemisphere

Explain, in your own words, how the tilt of Earth’s axis causes seasons.

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________
Lesson 2 | Climate Cycles (continued)

Main Idea

I found this on page __________.

Details

▶ Review how Earth’s equinoxes and solstices mark the beginning of each of the 4 seasons in this organizer.

The Beginnings of Seasons

Solstices
• Summer: axis __________ to the Sun
• Winter: axis __________ from the Sun

Equinoxes
• axis tilted so that both northern and southern hemispheres receive ______________ amounts of sunlight.
• beginning of __________ and ______________

I found this on page __________.

Sequence the statements to describe the phenomenon of El Niño/Southern Oscillation.

___ Warm water surges back to South America, preventing cold water from upwelling.
___ Trade winds that blow from east to west weaken.
___ The normal pattern of high and low pressure across the Pacific is reversed.

I found this on page __________.

Compare ENSO and NAO weather patterns.

<table>
<thead>
<tr>
<th>ENSO: El Nino/Southern Oscillation</th>
<th>NAO: North Atlantic Oscillation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>Description:</td>
</tr>
<tr>
<td>Weather Pattern:</td>
<td>Weather Pattern:</td>
</tr>
</tbody>
</table>

I found this on page __________.
Lesson 2 | Climate Cycles (continued)

Main Idea

I found this on page ________.

NGSSS Check
How does the ocean affect climate? SC.6.E.7.3

Droughts, Heat Waves, and Cold Waves
I found this on page ________.
I found this on page ________.

Details

**Explain** how monsoons change with the seasons.

**Summer:**
- _______________
- _______________
- _______________

**Winter:**
- _______________
- _______________
- _______________

**Define** drought.

Drought: _______________

**Model** the results of a drought and a heat wave occurring at the same time.

Drought        Heat Wave

- ______________ damage
- ______________ shortages
- loss of ______________

**Describe** the cause of cold waves.

- ______________
- ______________
- ______________

**Analyze It** Review what can happen during a drought and heat wave. What might be the effect of a cold wave?

- ______________
- ______________
- ______________
- ______________
- ______________
- ______________