

Scan Lesson 1. Record three questions you have about Earth's climates in your Science Journal. Try to answer your questions as you read.

Main Idea

What is climate?

I found this on page _____.

What affects climate?

I found this on page _____.


I found this on page _____.

I found this on page _____.


Details

 **Define** climate.

Climate: _____

 **Identify** 4 factors that determine a region's climate.

1. _____
2. _____
3. _____
4. _____

 **Describe** how latitude affects climate in different regions on Earth.

Polar regions: _____

Locations near the equator: _____

Middle latitudes: _____

Compare how altitude and latitude influence temperature.

Altitude	Latitude
As altitude increases, temperature _____	As latitude increases, temperature _____

Main Idea

I found this on page _____.

Large Bodies of Water

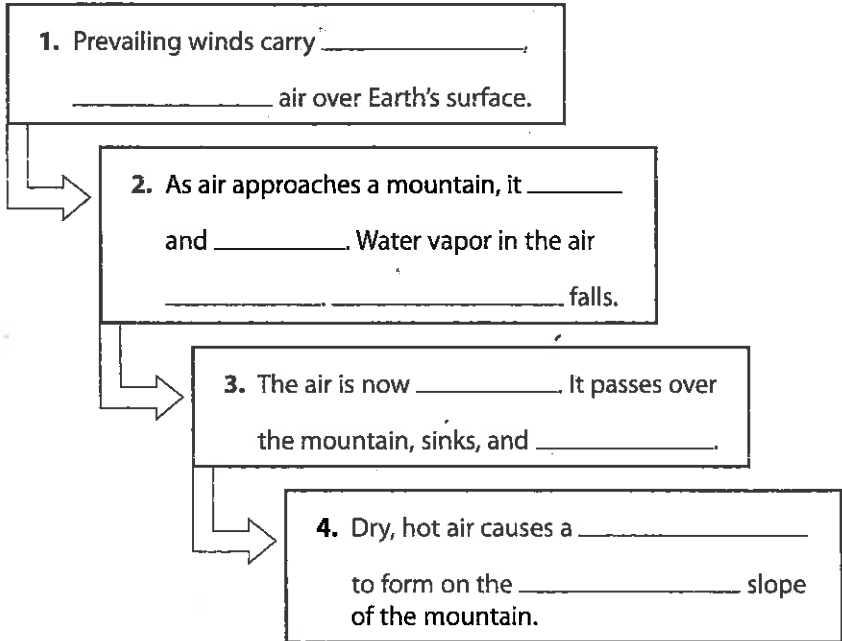
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Classifying Climates

I found this on page _____.

Details

Sequence the events that result in a rain shadow.



Define specific heat, and then explain how the specific heat of water can influence the climate of an area.

Specific heat: _____

Explanation: _____

Define microclimate, and identify three microclimates.

Microclimate: _____

1. _____
2. _____
3. _____

Main Idea

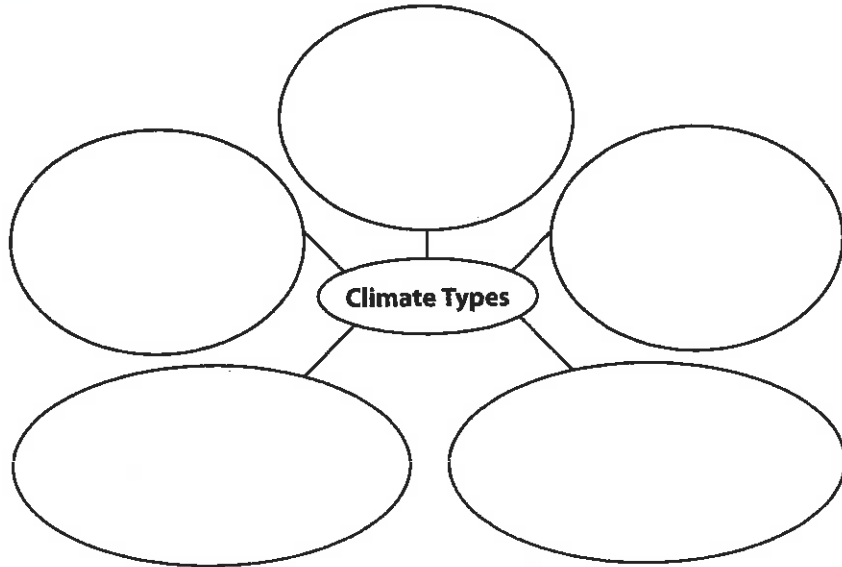
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Details

 **Identify and describe** *Koppen's 5 climate types.*



Explain *two ways that climate can affect people.*

Agriculture: _____

Architecture: _____


Analyze *how climate affects each of the following organisms.*

Polar bears: _____

Desert plants and animals: _____

Deciduous trees: _____

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 **Connect It** *Classify the climate in your area, and give reasons for your classification.*

Lesson 2 Climate Cycles

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

Main Idea

Long-Term Cycles
I found this on page _____.

I found this on page _____.

I found this on page _____.

I found this on page _____.

Details


Distinguish four ways scientists learn about past climates.

1. _____
2. _____
3. _____
4. _____

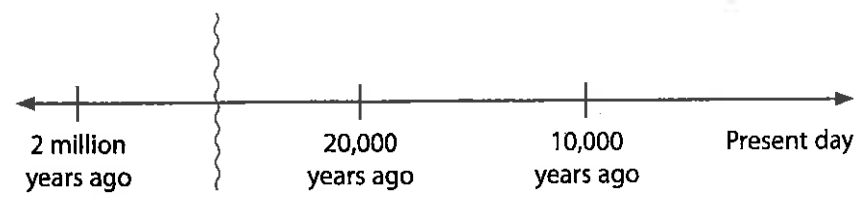
Compare an ice age with an interglacial.

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
- Holocene interglacial begins



Identify four causes of Earth's long-term climate cycles.

1. _____
2. _____
3. _____
4. _____

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Main Idea

Short-Term Cycles

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I found this on page _____.

Details

Summarize two causes of short-term climate cycles.

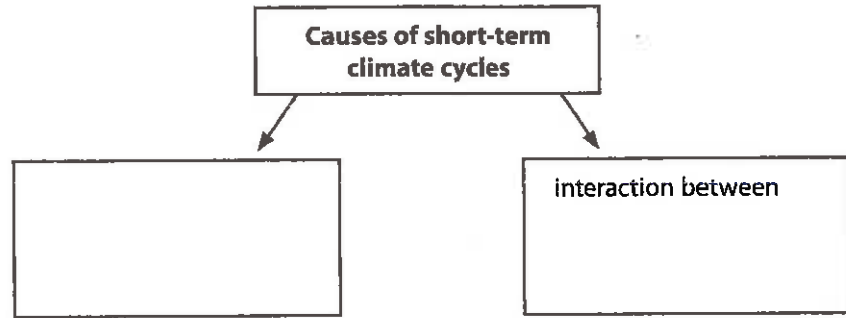
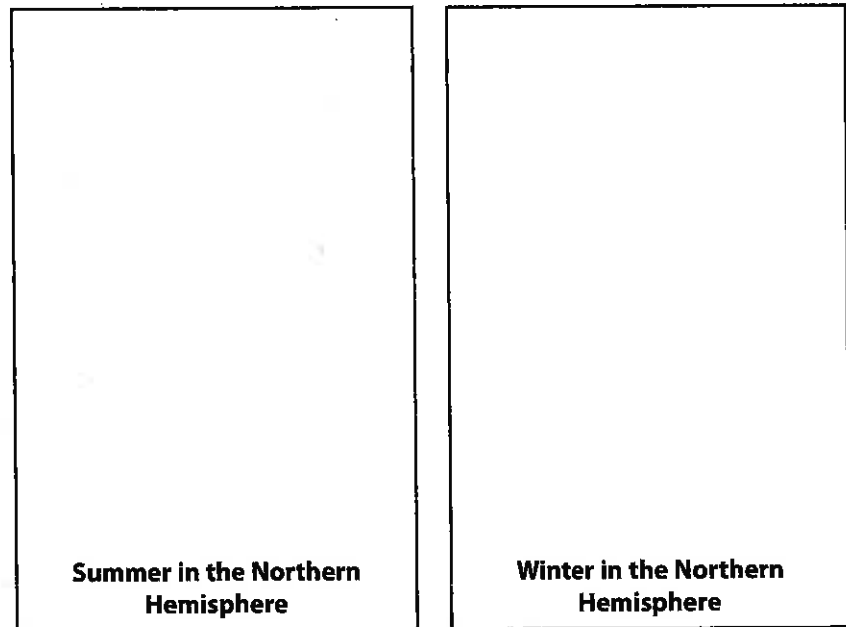



Diagram the position of Earth and its axis in relation to the Sun during summer and winter in the northern hemisphere.



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

Lesson 2 | Climate Cycles (continued)

Main Idea

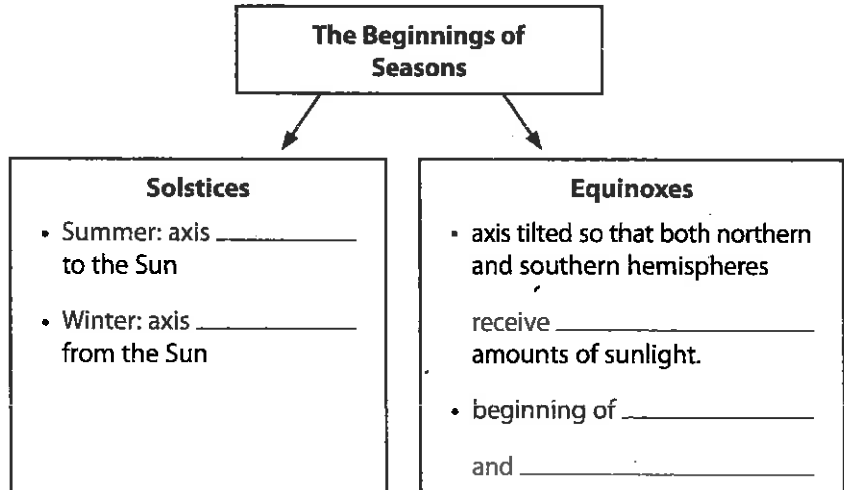
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Details

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



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.

Compare ENSO and NAO weather patterns.

ENSO: El Niño/Southern Oscillation	NAO: North Atlantic Oscillation
Description:	Description:
Weather Pattern:	Weather Pattern:

Main Idea

I found this on page _____.

Details

Explain how monsoons change with the seasons.

Summer: _____

Winter: _____

Droughts, Heat Waves, and Cold Waves

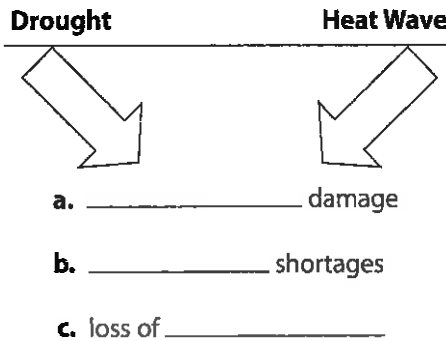
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Define drought.

Drought: _____

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



I found this on page _____.

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?

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Lesson 3 Recent Climate Change

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

Main Idea

Regional and Global Climate Change

I found this on page _____.

Human Impact on Climate Change

I found this on page _____.

I found this on page _____.

Details

Summarize Earth's air temperature over the past 100 years.

1880–1900 temperatures _____

1900–1945 temperatures _____

1945–1975 temperatures _____

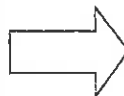
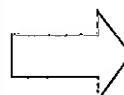
1975–2000+ temperatures _____

Define global warming, and explain the conclusion of the Intergovernmental Panel on Climate Change (IPCC).

Global warming: _____

The IPCC concluded that most of the temperature increase is due to _____ such as burning _____ and _____.

Explain how greenhouse gases affect Earth's temperatures.

Natural Greenhouse Effect		
<p>_____</p> <p>(CO₂), _____</p> <p>and water vapor</p> <p>_____</p> <p>Earth's outgoing infrared</p> <p>_____</p>		<p>Temperatures suitable for life are _____.</p>
Over the Last 120 Years		
<p>An increase in CO₂ levels causes _____</p> <p>_____</p>		<p>Average surface temperatures have been _____</p>

Main Idea

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I found this on page _____.

I found this on page _____.


Details

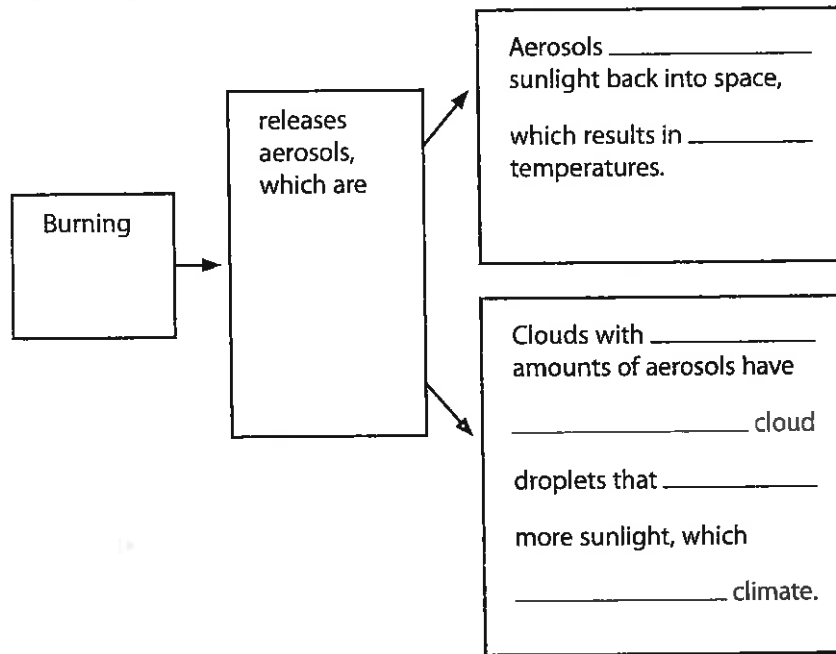
Identify three natural sources of carbon dioxide (CO₂).

1. _____
2. _____
3. _____

 **Recall** two human-caused sources of carbon dioxide (CO₂).

Human sources 

 **Explain** how aerosols are released into the atmosphere.



Climate and Society

I found this on page _____.

Identify the problems climate change poses for society.

Cause	Effect
_____ and _____	food and water shortages
excessive rainfall	

Main Idea

I found this on page _____.

Predicting Climate Change

I found this on page _____.

I found this on page _____.

I found this on page _____.

Details

Explain the environmental impacts of climate change.

Warmer Temperatures	
a.	cause more water to _____, producing _____ and _____ storms.
b.	_____ glaciers and polar ice sheets and cause _____ to rise.
c.	melt the frozen _____ in the Arctic, changing _____ patterns.
d.	cause _____ weather events to become more common.

Define the global climate model (GCM), and explain the limitations of the model's predictions.

GCM: _____

Describe two activities of increasing human populations that might affect climate.

1. _____
2. _____

Identify two ways people can reduce greenhouse gases.

1. _____
2. _____

Synthesize It Identify ways that people in your community could help to reduce greenhouse gases.
