

# Climate and Weather

**GA** Georgia Performance Standards

**SS6RC1.a.2** Read texts in a variety of genres and modes of discourse

**SS6IPS.1** Compare similarities and differences

**SS6IPS.5** Identify main idea, detail, sequence of events, and cause and effect

→ Visual Glossary

**Key Terms** • weather • climate • precipitation • temperature

The climate of Iquitos (ee KEE tohs), Peru, is hot and wet year-round. ▼

**Y**ou have learned about the powerful forces that shape Earth, including global movements, water, and sunlight. These forces also shape Earth's weather patterns. Weather patterns can vary widely from one region to another.

## Weather or Climate?

Do you look outside before you choose your clothing in the morning? If so, you are checking the weather. **Weather** is the condition of the air and sky at a certain time. Or do you choose your clothing based on the normal weather for the time of year in the place where you live? If so, you dress according to your local climate. **Climate** is the average weather of a place over many years.

How you feel about today's weather may depend on your local climate. If you live in a place with a wet climate, you may be unhappy to see rainy weather, because your climate means that you get rain frequently. On the other hand, if you live in a dry climate where water is scarce, you might be very happy to see rainy weather.

Rain is a form of **precipitation**, which is water that falls to the ground as rain, snow, sleet, or hail. **Temperature** is a measure of how hot or cold the air is. Precipitation and temperature are the main ways to describe both daily weather and long-term climate.

## Comparing Climates

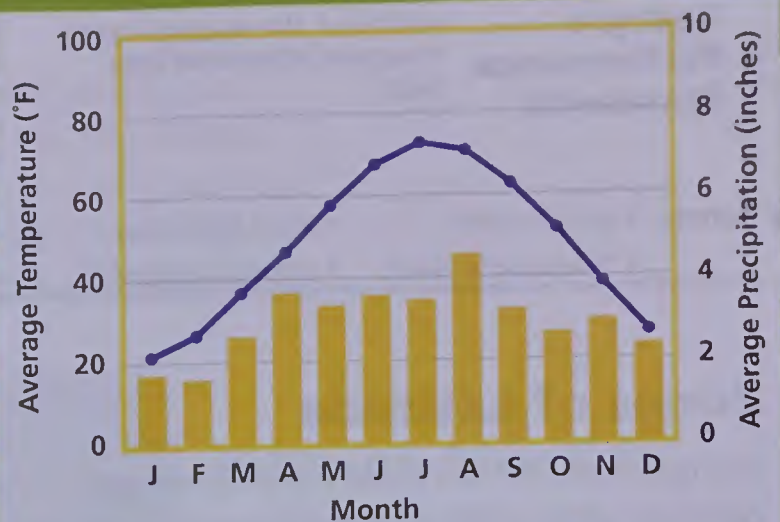
One way to understand and compare climates is to use climate graphs. Climate graphs show the average climate for a place for each month of a year. A climate graph has a curved line that shows average temperatures. It has bars that show average monthly precipitation. The next page has two examples of climate graphs.



### Chicago, Illinois

This is a climate graph of Chicago, Illinois, a city in the north central United States. It shows that Chicago has cold winters, hot summers, and moderate precipitation year-round. Notice that the line for temperature is much higher in July than it is in January. However, the heights of the bars for precipitation do not change much.

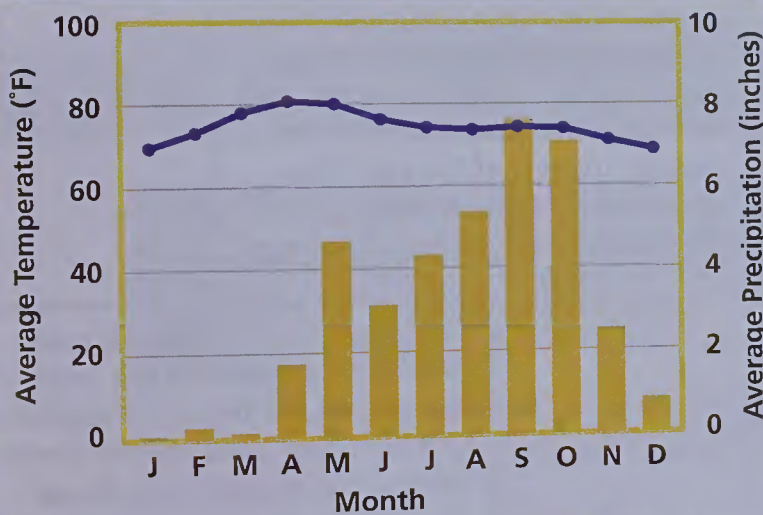
### Climate of Chicago, Illinois



SOURCE: National Weather Service

— Temperature ■ Precipitation

### Climate of Bangalore, India



SOURCE: World Meteorological Organization

— Temperature ■ Precipitation

### Bangalore, India

In some parts of the world, precipitation changes greatly from season to season. This is a climate graph of Bangalore, India. It shows that most of Bangalore's rain falls during a rainy season that lasts from May to October. Almost no precipitation falls from January to March.



## Assessment

1. How is climate different from weather?
2. How would you describe your region's climate?

# Temperature

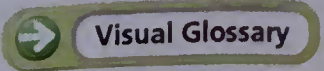


## Georgia Performance Standards

**SS6MGS.6** Use map key/legend to acquire information from maps

**SS6MGS.11** Compare maps of the same place at different times to determine changes, identify trends, and generalize about human activities

**SS6IPS.5** Identify main idea, detail, sequence of events, and cause and effect



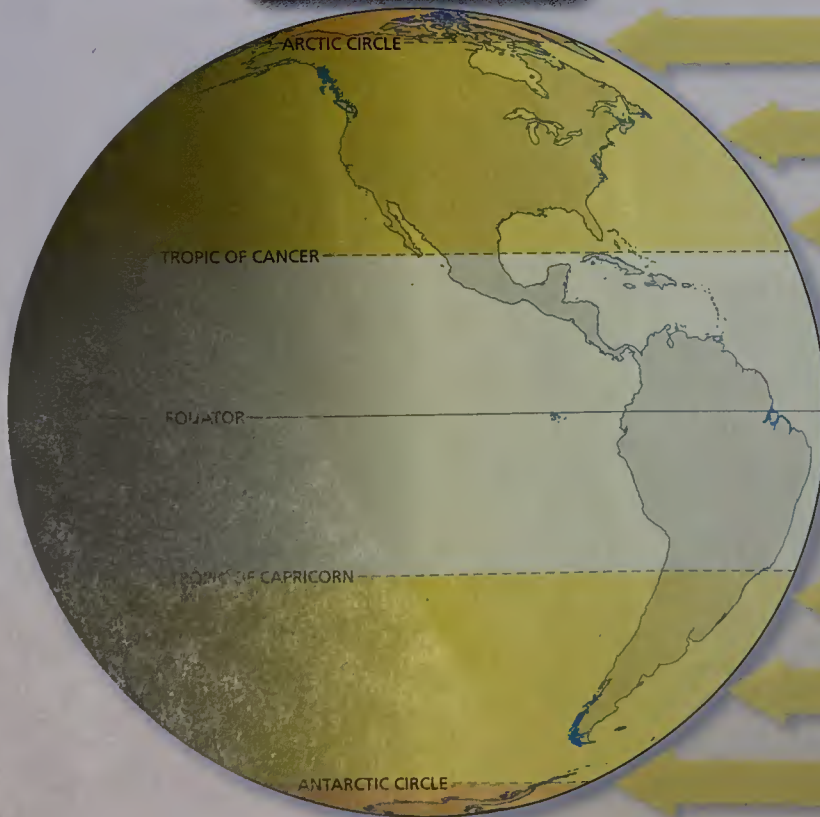
- Key Terms**
- polar zone
  - high latitudes
  - tropics
  - low latitudes
  - temperate zone
  - middle latitudes
  - altitude

## Zones of Latitude

Energy from the sun heats Earth. Because of the tilt of Earth's axis, different areas of the planet receive different amounts of direct sunlight. As a result, some regions are warmer than others.

### KEY

- Tropics (low latitudes)
- Temperate zones (middle latitudes)
- Polar zones (high latitudes)



The **polar zones**, also known as the **high latitudes**, are the areas north of the Arctic Circle and south of the Antarctic Circle. In the polar zones, the sun is below the horizon for part of the year and near the horizon the rest of the year. Temperatures stay cool to bitterly cold.

The **tropics**, or the **low latitudes**, are the areas between the Tropic of Cancer and the Tropic of Capricorn. In the low latitudes, the sun is overhead or nearly overhead all year long. In this region, it is usually hot.

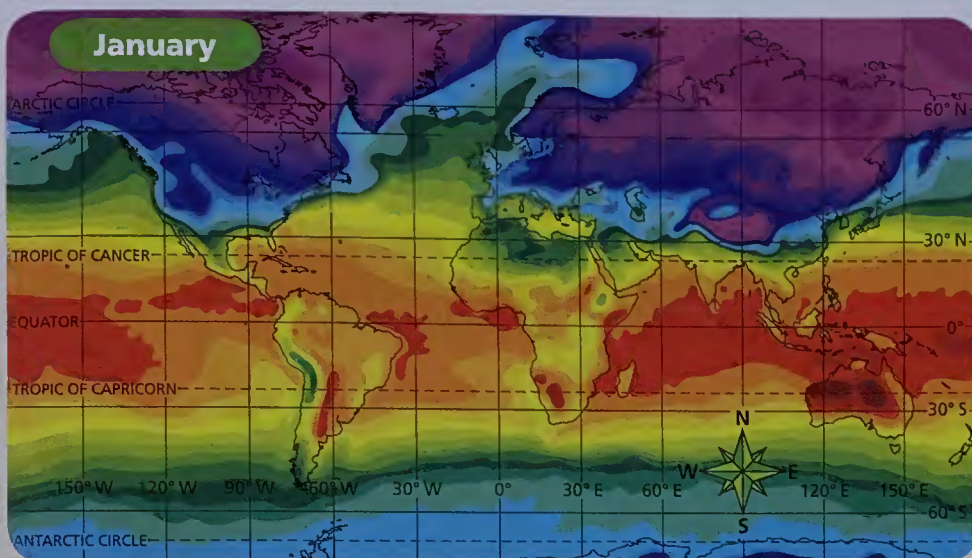
The **temperate zones**, or the **middle latitudes**, are the areas between the high and low latitudes. These areas lie between the Tropic of Cancer and the Arctic Circle in the Northern Hemisphere and between the Tropic of Capricorn and the Antarctic Circle in the Southern Hemisphere. They have a hot summer, a cold winter, and a moderate spring and fall.

## Seasonal Changes in Temperature

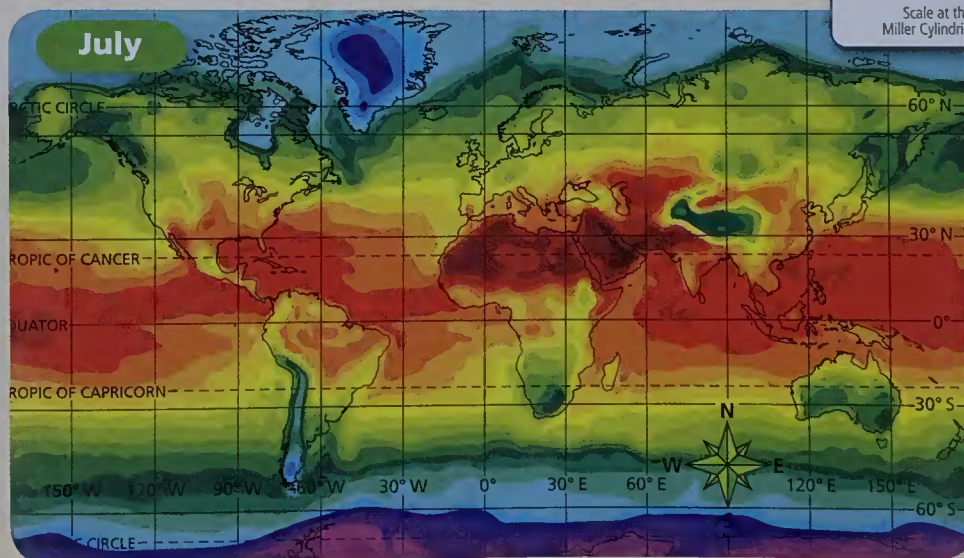
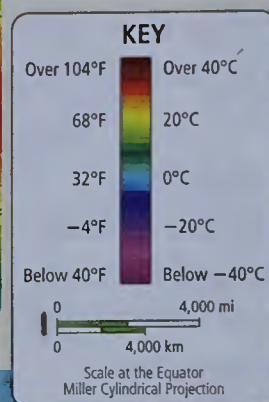
Because of the tilt of Earth's axis, temperature patterns change from season to season. The maps below show the world's average monthly temperatures in January and July.

In January, it is winter in the Northern Hemisphere and summer in the Southern Hemisphere. In July, the seasons are reversed. Notice that temperatures are cooler year-round over western South America and other areas. The lower temperatures are due to the high altitude of these regions.

**Altitude** is height above sea level. As altitude increases, temperature drops.



## World: Average Monthly Temperature



## Assessment

1. Why are most of the tropics, or the low latitudes, warm all year?
2. How does the tilt of Earth's axis explain changes in temperature from one season to another in the temperate zones?