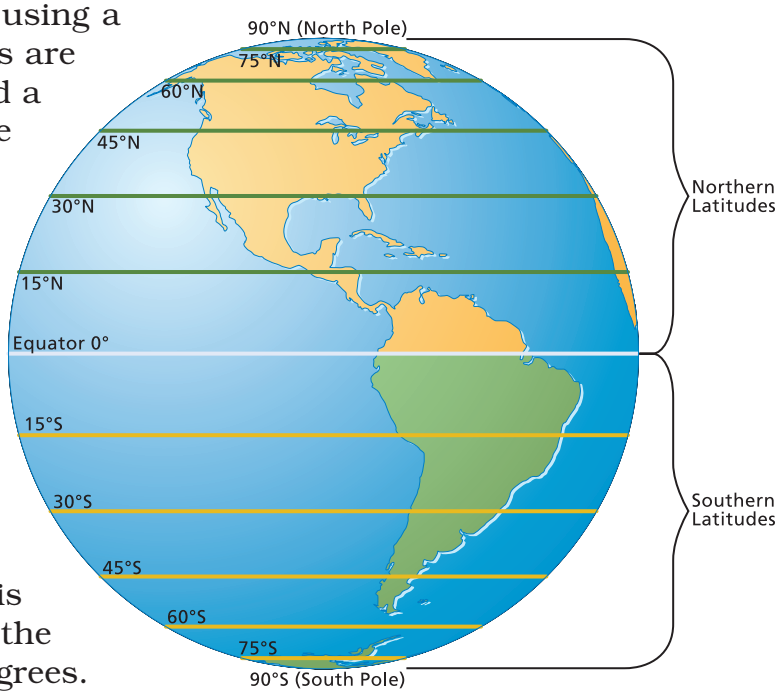
Activity 5

The Coordinate System

Key Words: latitude, degrees, longitude, prime meridian, absolute location

You can locate any place on Earth by using a special set of numbers. These numbers are part of a set of crisscrossed lines called a grid system. Most maps and globes have a grid of lines that go up and down, crossed by lines that go from left to right. These lines are imaginary—you can't see them on Earth—but they help you find places you need to locate.



The lines that run left and right are called lines of **latitude**. The equator is a line of latitude. Each line of latitude has a number. This number stands for the number of **degrees**. A degree is a certain distance north or south of the equator. The ° symbol stands for degrees. The equator is 0 degrees (0°) latitude.

The farthest north you can go is the North Pole. The North Pole is at 90° N. The farthest south you can go is the South Pole, at 90° S. Notice how lines of latitude do not touch each other. These lines are parallel. Lines of latitude are sometimes called *parallels*. If you hear someone say, "It's around the 30th parallel north," they mean 30° north of the equator.

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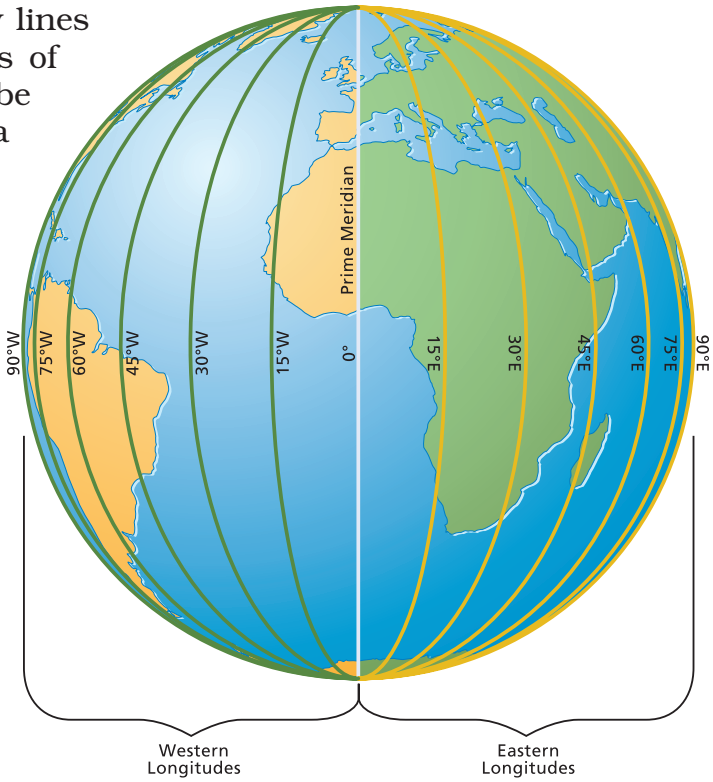
Look at the world map on page 24. There are numbers on the left and right sides of the map. Find the equator. The equator is at 0 degrees (0°). The line of latitude just south of the equator is at 15° S (south). If you look just north of the equator, you see 15° N (north).

1. About how many degrees north of the equator does South America go?
2. About how many degrees south of the equator does Africa go?
3. At about what latitude is Casablanca (in Africa) located?
4. At about what latitude is Sydney (in Australia) located?
5. Which European city is located at about 52° N?
6. Which African city is located at about 35° S?
7. New York City is about 40° from the equator. Is it 40° N or 40° S?

The map above shows the country of Spain.

8. About how far north does Spain extend? Answer in terms of degrees of latitude.
9. At about what latitude is the capital city of Madrid located?
10. The Strait of Gibraltar is a narrow body of water that separates the southern tip of Spain from Africa. At about what latitude is this strait located?

Most maps and globes also have imaginary lines going up and down. These are called lines of **longitude**. Lines of longitude can also be called *meridians*. The **prime meridian** is a line of longitude located at 0°.



Look at the world map below. The prime meridian is at 0 degrees (0°). The lines of longitude are labeled on the map with their numbers shown about where the equator would be. On this map, one line east of the prime meridian is 15° E (east). One line west of the prime meridian is 15° W (west).

The farthest east or west you can go is 180°. This line of longitude cuts through the Pacific Ocean. It goes through some of the South Pacific islands and is just east of New Zealand. 180° east and 180° west are the same line.

While lines of latitude are parallel and never touch each other, lines of longitude are different. Look at the globe above. Notice how the lines of longitude come together at the North Pole and the South Pole.

Use the world map above to answer the following questions.

11. About how many degrees west of the prime meridian does Africa go? About how many degrees east?

12. What line of longitude is Los Angeles nearest?

13. What line of longitude is Beijing nearest?

14. Which North American city on this map is at about 90° W?

15. Which European city on this map is at about 15° E?

The map above shows the country of South Africa. South Africa divides government power among three cities, so the country has three capitals! Use this map to answer the following questions.

16. How far west does South Africa extend? How far east? Answer in terms of degrees of longitude.

17. At about what longitude is Cape Town located?

18. At about what longitude is Johannesburg located?

19. At about what longitude is Durban located?

20. Find the small country of Lesotho near the middle of South Africa. About how many degrees from east to west does Lesotho extend?

21. What other city on this map is located at about the same longitude as Johannesburg?

Together, lines of latitude and longitude on maps and globes make up the Earth's grid system. Sometimes this grid system is also called the *coordinate system*.

When you state the latitude and longitude of a place, you are stating the place's coordinates. For example, the coordinates of Tokyo, Japan, are 35° N, 139° E. The coordinates tell exactly where a place is located on Earth. This is called **absolute location**. The absolute location of Minneapolis, Minnesota, is at latitude 45° N, longitude 93° W. You recall that the relative location of a place is its location in relation to another place. On the map below, the relative location of Minneapolis is east of Vancouver.

Use the grid system on the world map above to answer the following questions.

22. What is the absolute location of New Orleans?

23. What is the absolute location of Cairo?

24. What is the absolute location of Shanghai?

25. Name two cities that are located on the prime meridian (0° longitude).

26. Name two cities located on about the same line of latitude.

27. On what continent would you find 30° N, 90° E?

28. On what continent would you find 30° S, 60° W?

29. On what continent would you find 20° S, 135° E?

30. On what continent would you find 50° N, 105° W?

31. What is another name for the 0° line of latitude?

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Use the map of Ohio on the right to answer the following questions.

32. Which city is near 40° N, 84° W, Toledo or Dayton?

33. Which city is near 41° N, 81° W, Canton or Cincinnati?

34. Is the absolute location of Cleveland closer to 41° N, 84° W, or 41° N, 82° W?

35. What is the absolute location of Columbus?

36. Using lines of latitude, about how far north and south does Ohio extend?

37. Using lines of longitude, about how far east and west does Ohio extend?

Skill Builder

Review

Use the United States map on pages 70-71 to answer the following questions.

1. Which city's absolute location is at about 30° N and 90° W?
2. Which city's absolute location is at about 45° N and 93° W?
3. Through which four states does the 110th meridian (line of longitude) run?
4. What are the latitude and longitude of Philadelphia?
5. What is the absolute location of Denver?
6. Is the United States in the Northern or Southern Hemisphere? Is it in the Eastern or Western Hemisphere? How can you tell from this map?
7. Which means distance north or south, latitude or longitude?
8. What is another word for a line of latitude, parallel or meridian?
9. What is another name for the grid system that shows latitude and longitude on a map?

Try It Yourself

Look at the world map on pages 66-67. Find the countries located at these latitudes and longitudes:

- 60° N, 60° E
- 20° S, 140° E
- 20° N, 100° W