Where in the World?

Grade Level: 3-5
Time: 30 minutes
Objectives: Students will plot longitude and latitude coordinates on a map to determine the city/state/country of several children's gardens.
Materials:
- World map (classroom display-sized) with names of cities, states, and countries
- *Where in the World?* worksheet, one for each student
- Copy of a world map which contains basic latitude and longitude lines, for each student [free printable PDF versions of World Continents and World: Political maps are offered from Houghton Mifflin Company®]
- Ruler
- Crayons or colored pencils
- Optional: Information related to the *Garden Vacation* destinations, found on the website.

Laying the Groundwork

1. Longitude and latitude coordinates provide precise identification of where points of interest can be found geographically. To help students distinguish the difference between two measurements have them think of the word "long" in longitude relating to a long telephone pole. The telephone pole is vertical, just as the lines of longitude run vertically from north and south poles. Latitude, with an "f" sound at the beginning, would be "flatitude". Lines of latitude are flat and run horizontally.

2. The equator lies at 0 degrees latitude and the prime meridian lies at 0 degrees longitude. Coordinates are given in degrees north or south in respect to whether the location is north or south of the equator and degrees west or east in respect to whether the location is west or east of the prime meridian.

3. The temperate zones of the earth lie between the tropics and the polar areas. The northern temperate zone extends from the Tropic of Cancer (23°N) to the Arctic Circle (66°N). The southern temperate zone extends from the Tropic of Capricorn (23°S) to the Antarctic Circle (66°S). The vast majority of the world's population lives in the temperate zones. The climate changes in these regions between summer and winter are generally moderate.

Exploration

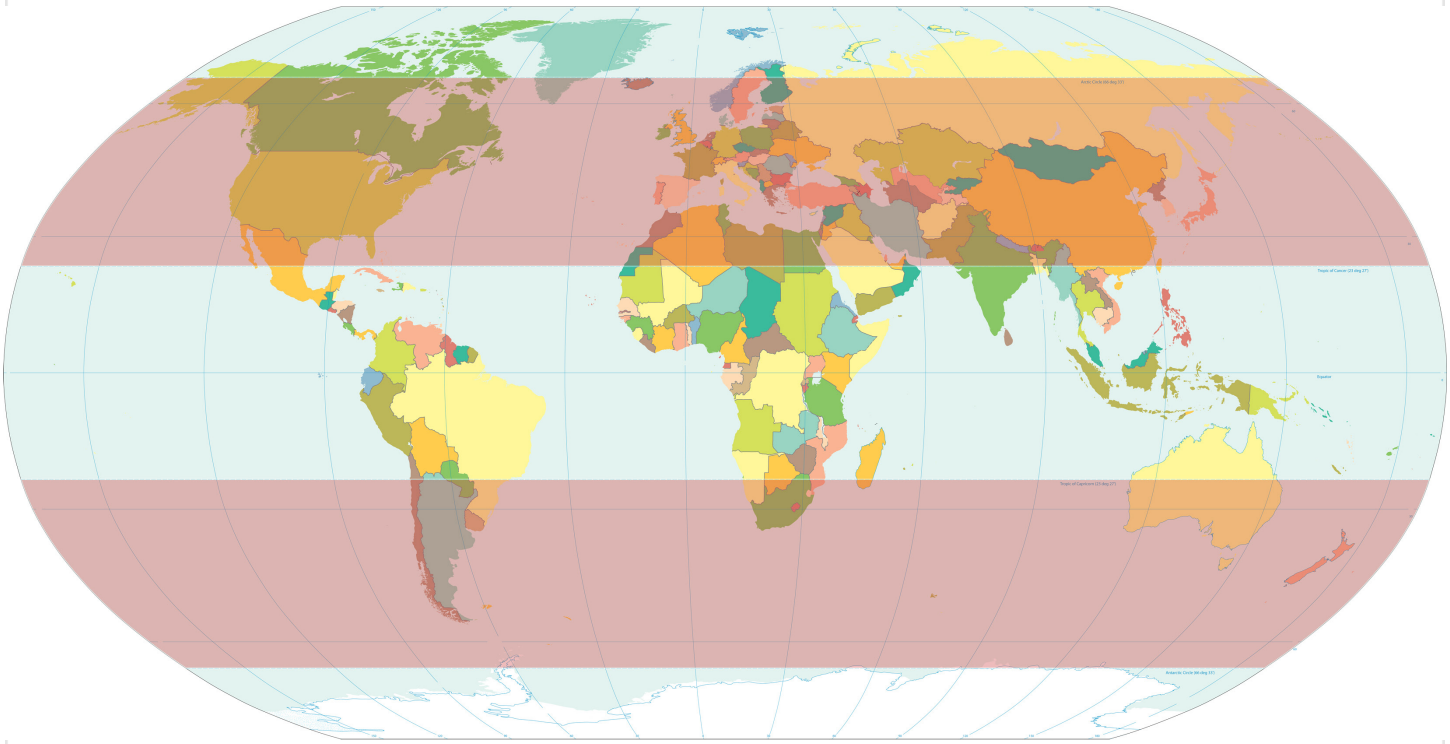
Teacher Note: These activities may be done in groups or as a class, dependent upon the level of understanding of the subject by the students. You may also wish to display the map of the temperate zones to highlight specific mapping elements.

1. Give each student crayons/colored pencils, ruler, a copy of a world map, and the *Where in the World*? worksheet.

2. Ask the students to locate the Prime Meridian on their map. They should mark the location with a red crayon, using the ruler if necessary.

3. Ask the students to mark the Equator in a similar way, using a blue crayon.

4. Have the students locate 23°N latitude on their map. Using the ruler, they should create a yellow line to indicate the Tropic of Cancer. Have the students then locate 23°S latitude on their map. Draw this line in yellow to indicate the Tropic of Capricorn.



This map indicates the World temperate Zones in the shaded areas.

5. Have the students place a purple X in an approximate location to where they live on the world map.

6. Students should use the location coordinates given on the *Where in the World?* worksheet to identify where botanical gardens exist.

7. When the worksheets are complete, ask the students why the majority of botanical gardens are located within the temperate zones? (Answers may include: moderate climate, most people live in temperate zones, wealthier countries) Help the students understand that many botanical gardens also do a lot of plant research to better understand how plants sur-

vive in certain climates. Plant research is important for food production, climate change, and advances in scientific technology. Many botanical gardens also have large greenhouses to simulate more tropical climates and to house the plants that live in those areas. What would be some of the disadvantages of trying to have a botanical garden in an extreme climate? (e.g., regulating the temperature in greenhouses would get expensive, there are a limited number of varieties of plants that could grow naturally in extremem climates, gardens may be limited on the number of visitors-which may affect revenue to the gardens.)

Digging Deeper

Share with students the names of each botanical garden that corresponds to the coordinates on the worksheet. Provide the students with some information about each of the botanical gardens, as identified in the Kidsgardening.org "Garden Vacations" group. Alternatively, students could work in pairs. Assign each pair one of the garden vacation destinations. Have each group research the garden by identifying the city, state, and/or country and observe some of the features that make the garden appealing to children. Groups can then report their work to the class.

Ask your students if they have visited a children's garden. What were their favorite things about the garden? Have your students identify some important common elements of children's gardens they have visited and those described in A Visit to the First Public Children's Gardens in Asia. Find out if your students have any additional features they would like to see in their school garden. Determine which ideas are feasible and help students develop a plan for getting their ideas into the garden.

This lesson plan was developed by Cynthia Domenghini and Rose Judd-Murray, NGA staff.

Where in the World?

Botanical gardens are located all over the world. Many are designed to grow plants that are only found in that part of the world. Can you locate these countries where botanical gardens are enjoyed?

Instructions: Use the latitude and longitude coordinates to find the country where these botanical gardens are located. When you find the right location make a small circle on your map and write the question number inside the circle. Then, in the blank space on this worksheet, write the name of the country where the coordinates were located. *Look at the example below, if you have the coordinates 38°N 77°W, you would make a small circle with a 1 inside on the map. Then, in the blank space, on this worksheet write in the United States.*

Where Am I?

1.	***38°N, 77°W***	***example***	***United States*** _____ ***example***
2.	1°N, 104°E		_____
3.	48°N, 123°W		_____
4.	31°N, 121°E		_____
5.	51°N, 0°W		_____
6.	33° S, 18° E		_____
7.	22°S, 43°W		_____
8.	42°N, 87°W		_____
9.	39°N, 75°W		_____
10.	35°N, 139°E		_____

Bonus:

32°N, 16°W _____

Digging Deeper:

1. Can you locate the cities, states, or provinces of these map coordinates? (Hint: use the classroom map)

2. Which location is closest to where you live? _____

Where in the World?

Botanical gardens are located all over the world. Many are designed to grow plants that are only found in that part of the world. Can you locate these countries where botanical gardens are enjoyed?

Instructions: Use the latitude and longitude coordinates to find the country where these botanical gardens are located. When you find the right location make a small circle on your map and write the question number inside the circle. Then, in the blank space on this worksheet, write the name of the country where the coordinates were located. *Look at the example below, if you have the coordinates 38°N 77°W, you would make a small circle with a 1 inside on the map. Then, in the blank space, on this worksheet write in the United States.*

Where Am I?

1.	38°N, 77°W	United States (Washington, D.C., National Botanic Garden)
2.	1°N, 104°E	Singapore (Singapore Botanic Gardens)
3.	48°N, 123°W	Canada (British Columbia, Buschart Gardens)
4.	31°N, 121°E	China (Shanghai, Chenshan Botanical Gardens)
5.	51°N, 0°W	United Kingdom/England (London, Royal Botanic Gardens)
6.	33° S, 18° E	South Africa (Cape Town, Kirstenbosch National Botanical Garden)
7.	22°S, 43°W	Brazil (Rio de Janeiro, Rio de Janeiro Botanical Garden)
8.	42°N, 87°W	United States (Chicago, Chicago Botanic Garden)
9.	39°N, 75°W	United States (Pennsylvania, Longwood Gardens)
10.	35°N, 139°E	Japan (Yokohama, Yokohama Municipal Children's Botanical Garden)

Bonus:

	32°N, 16°W	Portugal (Madeira [island], Reid's Palace Gardens)