Gardens Throughout the World

Grade: 4
Subject: Social Studies, Science, Language Arts
Time: 60 minutes

Standards: Students will...

Geography Standard 1: Understand the characteristics and uses of maps, globes and other geographic tools (e.g., compasses) and technologies.
No specific benchmark applies.

Geography Standard 14: Understand how human actions modify the physical environment.
Benchmark # 3: Know how human activities have increased the ability of the physical environment to support human life in the local community, state, US and other countries (e.g., planting gardens, use of irrigation and dry-land farming techniques to improve crop yields).

Geography Standard 18: Understand global development and environmental issues.
Benchmark # 2: Know ways in which resources can be managed and why it is important to do so (e.g., by planting gardens and eating locally grown fruits and vegetables we reduce the need to transport foods over great distances, reducing fossil fuel emissions).
Benchmark # 4: Know human-induced changes that are taking place in different regions and the possible future impacts of these changes (e.g., eating locally grown foods will lessen the amount of fossil fuel emissions which contribute to global warming).

Historical Understandings Standard 2: Understand historical perspective.
Benchmark # 2: Understand that specific individuals (e.g., Eleanor Roosevelt) had a great impact on history.
Benchmark # 3: Understand that specific ideas (the Victory Garden) had an impact on history.

Objectives: Students will be able to...
- Locate specific gardens on a global map based on information presented in the lesson.
- Identify a Victory Garden as an option that allows people to eat locally grown, healthy food while benefiting both the community and the environment.
- Compare and contrast gardens throughout the world (location, type of garden and plants, purpose) by creating Venn diagrams.
- Use the contextual information to research a specific garden and summarize research in a paragraph.

Materials:
- Copies of a world map provided (one for each group)
- Mini plant stickers (one set of six for each group)
- "Famous Gardens Throughout the World" handout provided (one per student)
- Computers with Internet access
- Writing utensil
- Chart paper
- Markers
- Composition paper

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Overview: In March 2009 First Lady, Michelle Obama, along with help from White House staff and twenty-three 5th graders from Bancroft Elementary School, broke ground on the South lawn of the White House for an organic garden. This garden, the first on the White House grounds since Eleanor Roosevelt's World War II Victory Garden, was planted with a variety of vegetables, berries, herbs and edible flowers. The crops grown in the White House garden were used to feed the First Family and their guests, and citizens at local soup kitchens. The First Lady's intentions in planting this garden were two-fold. While the food it would produce would be put to good use, she also hoped it would serve as a model, to encourage Americans to grow their own community gardens that would make fresh, healthy food available to those who, for lack of time and money, often go without.

The White House Garden is just one of many gardens throughout the world that are having an impact on society. This purpose of this lesson is to introduce students to some of the notable gardens throughout the world, their featured plants, and the impact they have on their communities and the world at large. Please click here to view both the creative artwork for this great lesson and the downloadable PDF.

Kid's Speak: First Lady Michelle Obama planted a garden at the White House to help grow fresh vegetables and fruits for her own family, and for people who visit the soup kitchens in the Washington D.C. area. She hoped by doing this she could show all Americans that they can do something to help themselves and live healthier lives. There are many other kinds gardens that have been planted to improve the lives and the living conditions of the people that live nearby and around the world.

Eco-Fact: Estimates suggest there are currently more than one million community gardens planted, with many of those in "under-served urban communities."

Procedures:
Before Mapping the Famous Gardens:
- Review with students the basic elements of a map (e.g., title, legend, cardinal and intermediate directions, scale, grid). Display a class size world map and locate your current position.

- Introduce the topic of world famous gardens. Distribute the Famous Gardens throughout the World handout to students. Have volunteers take turns reading aloud the text provided about the various gardens. Display pictures of the various gardens if available. After reading about each garden ask students to identify:
    - Location of the garden (e.g., country and continent, coastal vs. inland, N S E W)
    - Type of garden (e.g., organic, experimental)
    - Types of plants grown in the garden (e.g., fruits, vegetables, herbs, flowers, ornamental trees).
    - Purpose or local and global significance of the garden
    - Who is responsible for developing and maintaining the garden (e.g., individual, group, nation)?

Procedures for Mapping the Famous Gardens:
1. Divide the class into groups of three or four students. Distribute the copies of the world maps and stickers to each group.
2. Have students use the contextual information found in the handouts to plot the gardens on the map. Students should mark the locations with the plant stickers.
3. Provide each group with a world famous garden not described on the handout. (See the list below. Some basic information has been provided for the teacher's use.) Have students research the garden, develop a paragraph similar to those on the handout, locate the garden on their maps and identify the location with a plant sticker, and create a Venn Diagram comparing the new garden to one or two of those describe on the handout. Students should include the five main points listed above in the presentation materials.

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List of World Gardens for students to research:

Kirstenbosch – Cape Town, South Africa
- Developed as a botanical garden in 1913
- Grows only indigenous South African plants
- English colonists developed and planted the area during their occupation
- Promotes the sustainable use and conservation of the exceptionally rich plant life of South Africa.

Australian National Botanic Gardens - Canberra, Australian Capital Territory
- Grows and study plant's native to Australia, such as Kangaroo paws, Tea Trees and Wattles
- Grows over 6,000 species of Australian flora and fauna
- Focus is on species conservation of threatened Australian plant life and species recovery programs
- Administered by the Australian National Park Service

Hawaii Tropical Botanical Garden - Papaikou, Hawaii, US
- With more than 2,000 species of tropical plants from around the world including palms, heliconias, gingers, bromeliads
- Non-profit nature preserve dedicated to providing a plant sanctuary, a living seed bank, and a study center for trees and plants of the tropical world
- Located in a 40-acre valley that serves as a natural greenhouse, protected from tradewinds, with fertile volcanic soil.
- Some of the Garden's enormous mango and coconut palm trees are over 100 years old.
- Dedicated to the education of both children and adults about the plight of the world's rainforests and to preserve as many species as possible for the benefit of future generations

Royal Botanic Gardens at Kew Surrey, on the Thames just W of London, S England
- A UNESCO World Heritage site and a world-leader in plant-related collections, scientific research and international conservation
- Contains the world's largest collection of living plants, approximately 30,000 from all over the world, and seven million preserved plant specimens
-Founded by the dowager princess of Wales in 1761 and presented to the nation as a royal gift. It has grown in size from the original 9 acres to its present size of 288 acres.

After Mapping the Famous Gardens:
- On the class world map have volunteers come up and mark the location of the gardens described on the Famous Gardens throughout the World handout.
- Then have each group present the information on their garden. One student should locate the garden on the class world map and mark its location. Then students present the information in the paragraphs they wrote, covering all five the points that were to be addressed. Students display the Venn Diagram, noting the similarities and differences they found between the garden they researched and the one or two gardens from the handout.

Adaptations: For younger grades, explain the White House Garden and find and mark its location on a US map. Compare it to other gardens around the country (e.g., Longwood Gardens, Calloway Gardens, White House Rose Garden).

Extensions:
- Research historical gardens, like the Hanging Gardens of Babylon.
- Examine the climate of the gardens describe in the handout and discuss the growing conditions and types of foods native the area.

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- For more information on starting and maintaining your own garden, visit the Green Thumb Challenge section of this GEF website.

GEF Community: Teachers, join the GEF Community on-line. Share your green successes with other GEF Community classes.

Name: _____

Famous Gardens Throughout the World

The White House Garden: In March 2009, First Lady Michelle Obama, with the help of White House staff and twenty-three 5th grade students from Bancroft Elementary School, broke ground for an organic fruit and vegetable garden. The garden was planted with a variety of green leafy vegetables, such as lettuce and spinach, as well as broccoli, peas, radishes, carrots and onions. Fruits included rhubarb, and blueberries, blackberries and raspberries. There were also a variety of herbs, including parsley, sage, rosemary, thyme, cilantro, bay leaves, chamomile and dill. The crops grown in the White House garden were used to feed the First Family, and citizens at local soup kitchens. The First Lady started the garden not only for the food it would produce, but also to encourage other groups of Americans to grow their own community gardens. She hopes these gardens will make fresh food available to more people and help everyone eat healthier. The White House organic garden is located on the South Lawn. The White House, itself, is in Washington, D.C., the capital of the United States. It is surrounded by the states of Maryland and Virginia.

Valmer Terrace Gardens: The gardens at Chateau de Valmer sit on the side of a hill overlooking the Browne, a tributary of the Loire River. Located just southwest of Paris, in a region referred to as the "Garden of France" these beautiful gardens have been carved out of the hillside and organized into eight levels of terraces. One of the gardens in particular, the vegetable garden, is known worldwide for growing approximately 906 types of organic fruits and vegetables, some of which are very unusual. Visitors to this unique vegetable garden learn about the wild seeds that were once used to grow food, and how they have been adapted to grow the vegetables we eat today. The garden is a lesson in history, located in the perfect spot, with the perfect climate for growing food.

Maikaal Bio-Dynamic Cotton Farm in India: Textiles are one of India's leading exports, and cotton is a important crop grown in that country. One of the problems facing the cotton farmers in today's environmentally conscious world is how to grow organic cotton while still making a reasonable profit. Bio-dynamic farming methods are proving to be the answer. The Maikaal Project was begun by a Swiss company. At the Maikaal farms, which are located in central India, in Madhya Pradesh, one of India's largest states, bio-dynamic methods are being used to grow cotton. Bio-dynamic methods improve the soil and keep it healthy. By adding special compost to the soil it is able to hold more water, so the land needs less irrigation. This means the soil is richer, more fertile and better for growing. As farmers learned about the success at the Maikaal Project, and other projects like it, they tried the same methods. Now not only cotton, but other crops, including fruits, vegetables, grains, coffee, tea and spices are grown all over India on both large and small farms using bio-dynamics.

Limbe Botanical Gardens in Cameroon: The Limbe Botanical Gardens were developed in 1892 by people of German descent. It was once one of the most important botanical gardens where crops such as coffee, sugar cane, rubber, palm oil, and banana, were introduced and distributed to the world. However, ownership transferred several times over the years between 1920 and 1998 and the gardens suffered during that time. In 1998 a partnership was formed between the peoples of Cameroon and Britain and the gardens were renovated and restored. These gardens now cover 48 hectares or approximately 119 acres. The purpose of the botanical gardens has changed over the years and instead of focusing on agriculture they now serve as a center for conservation and sustainable use of the local rainforests, for scientific studies of the natural resources that benefit mankind, and to promote tourism and recreation. The gardens are located in the coastal foothills of Mount Cameroon, which is in the country of Cameroon, a coastal nation on the continent of Africa.

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