Lesson 1:

School and Community Gardens

Time Allotted
60 Minutes

Target Audience
Grades 1-8

Objectives

- Students will maximize garden growth in a limited planning space
- Students will draw parallels between the basic needs of humans and those of plants

Materials

- Art supplies (crayons, markers, pencils, pens, glue, scrap paper, construction paper, scissors)
- Magazines—specifically gardening, housekeeping, food, and outdoor magazines

Summary

Through discussion and brainstorming, students will consider different factors such as location, type, useful resources, requirements, space, and growing methods associated with a shared garden space and how these concepts will apply to their own garden design and space.

Background

School gardens — whether window, container, or outdoors — can enhance the emotional, social and physical health of its students and school community. The presence of living plants in schools has been shown to increase information retention by both students and staff[1]. Gardens provide teachers of all subject areas with hands-on learning opportunities in an alternative setting and expose students to the joys of growing their own food. Additionally, students working in a garden are able to draw parallels between their own basic needs and those of plants and connect the health of plant life with their own.

Large or small, a garden can be any place a person decides to grow food or ornamental plants. Students will begin to understand that in an urban environment, where space is limited, a garden simply means a space where they take care of plants. Reimaging our definition of what a garden can be can will open possibilities to what it could be. In this lesson, students will begin to relate the needs of their bodies to those of plants and understand that plants are living beings that respond to their environment. Students will also learn different ways to consider space and plant growth and how to use this information to maximize their own garden space.

Method

1. Begin this lesson by facilitating a general garden discussion, using the following questions as a guide:

   - What does a garden look like to you? (Encourage them to use words and images - magazine clippings or drawings - if possible).

   - Are there any gardens around the school or in your neighborhood? What do these gardens look like?

   - What do you think are some important elements and conditions that make a successful garden? A school garden?

   - Who or what would be good resources to consult when trying to create your own garden?

   - What do you think are some basic requirements of creating a garden space? (Have students brainstorm 5 basic requirements—aside from the space and plants—to get a garden started)

   - How are the needs of a garden/plants similar to those of a human?

[1]http://ellisonchair.tamu.edu/health-and-well-being-benefits-of-plants/#.Ux2_gfSwKWg

2. In small groups, have students create a Venn diagram comparing their survival needs to those of a plant. The outer circles will have needs unique to humans or plants and the overlap will show shared needs. Have them share their diagrams. Understanding the fundamental similarities will help them to understand many of the changes that occur in the garden.

3. Often, when gardening, we are working within a limited space. In order to achieve the highest yield or harvest possible within this space, it is important to know a few things. After learning about plant cycles, parts, and parts we eat (see lessons 6 and 7), consider: Where do these plants grow (below ground, above ground, on vines, on trees, etc)? When planning a garden, it is useful to know these things when choosing which plants will work best in the space you are working with.

4. Briefly introduce methods of growing (or have students research different methods) using illustrations, or diagrams. There are many different planting methods used in gardening, dictated by the garden's intention, crops grown, region, intended results, etc. Some gardens are planted directly in the ground — conventional row design — whereas others are built in containers or raised beds; some have single crops grouped, whereas others interplant multiple crops — as with intensive planting.

5. Briefly explain the concept of "intensive planting." Intensive planting broadly means "growing more in a limited space" and can include inter-planting (planting a mix of crops in the same place) and planting in layers. One way to describe the latter method is through a comparison to the natural layers of forest growth: canopy, low-tree, shrub, herbaceous, ground cover, rhizosphere (below ground), and vertical (vines and climbing plants). Within a garden, we also have layers (albeit, on a much smaller scale) and planting crops considering not only surface area, but the space below and above ground is an effective way of maximizing space.
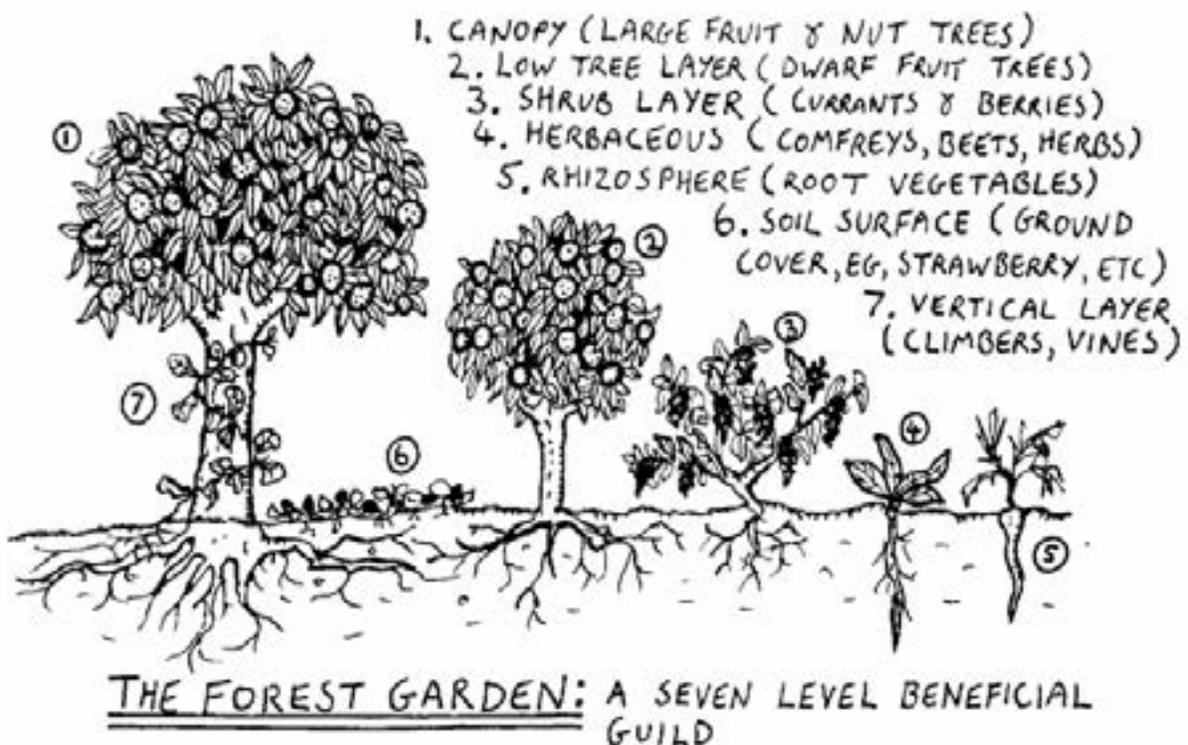

1. CANOPY (LARGE FRUIT & NUT TREES)
2. LOW TREE LAYER (DWARF FRUIT TREES)
3. SHRUB LAYER (CURRANTS & BERRIES)
4. HERBACEOUS (COMFREYS, BEETS, HERBS)
5. RHIZOSPHERE (ROOT VEGETABLES)
6. SOIL SURFACE (GROUND COVER, EG, STRAWBERRY, ETC)
7. VERTICAL LAYER (CLIMBERS, VINES)

THE FOREST GARDEN: A SEVEN LEVEL BENEFICIAL GUILD

Diagram by Graham Burnett, permaculturalist.

Extensions

- Give students a hypothetical 4'x4' plot and have them research crops based on requirements such as zone, spacing, height, and light. Based on their findings, have students select crops to "plant" in their plot; have them draw and present their findings and final "garden space."

- Have students research alternative growing methods for different climates and regions around the world — terraced gardening in mountainous regions, hydroponics, rooftop gardening, vertical gardening, etc.

- Have students research planting strategies, such as interplanting and companion planting. Interplanting is the practice of planting a fast-growing crop between a slower-growing one in order to make the most of your garden space. An example of this would be sowing lettuce seeds between broccoli plants; the lettuce will grow happily in the space and shade provided by the broccoli plants, and you will be able to harvest it before the broccoli is large enough to totally shade it out. Companion planting is putting plants together for mutual benefit, such as increased yield or bug attraction/repellence. Visit http://www.garden.org/ediblelandscaping/?page=201005-interplanting as a starting place.