

	Overview
Introductory Lessons	
Introduction to Seeds to Plate	Students will meet the StP instructors, will learn the goals of the StP Program, the structure of the garden lessons, and what is expected of them.
Garden Walking Tour	Students will explore the garden to become familiar with its layout and the different plants growing in it.
Working Safely: Which Tools?	Students will learn about the tools and equipment they will use in the garden and how to work with them safely.
Compost, Recycling, and Trash	Students will learn how to make compost and how it benefits a garden. Students will also learn the importance of recycling and the dangers of landfills.
Teamwork in the Garden	Students will learn to safely and respectfully work as a team to complete a task in the garden.
History	
6th Grade- Ancient History	
Mesopotamia	
Cooking Vegetables 4,000 Years Ago	Students will read and analyze and LA Times article to learn what prehistoric man first ate and how he hunted, gathered and cooked his meals.
The Invention of Irrigation	Students will learn how humans in the age of early agriculture recognized the importance of living near water sources. They captured and used water sources, such as the Tigris and Euphrates rivers and their tributaries, to irrigate crops in the Fertile Crescent. Students will develop an irrigation system in the garden similar to that used in early agriculture.
Agriculture in the Fertile Crescent	Students will learn about one of the places where agriculture first began: the Fertile Crescent, and why it happened here.
From Small Villages to City States	Students will learn the factors that led the Mesopotamians to create city-states during the Neolithic Period (10,200-2,00 BCE).
Cuneiform Writing in Sumeria	Students will learn about one of the earliest known examples of writing, made with sticks using wedge-shaped strokes on clay, stone, metal or wax, that originated in Sumeria about 4,000 BCE. They will have the opportunity to write in the cuneiform style on clay using symbols for items in their garden.
Hammurabi's Code	Students will learn about the oldest known comprehensive system of law and punishment and understand why laws are needed. They will learn that these laws were not all written by this Babylonian god-king, but rather were based on legal decisions made by judges before and during Hammurabi's reign. They will also analyze whether this legal system was fair.
Egypt	
The Gift of the Nile	Students will learn the importance of the Nile river in the formation of Egypt as a nation.
A Day in the Life of an Egyptian	Students will learn about the daily lives of Egyptians and how life varied dramatically based on social class.
What did Cleopatra Eat?	Students will sample what first grew along the Nile River in Egypt, how the diet of Egyptian nobility was different from that of farmers/slaves. *Note: This is less of a lesson and more celebration. It is a great culminating activity for the Ancient History or Egyptian Unit.
The Hebrew's Exodus from Egypt and Passover	Students will learn the story of the Ancient Hebrews of Canaan and the significance of Passover in the Jewish religion.
India	
Buddha and the Eightfold Path	Students will learn about the origins and tenets of Buddhism. They will practice a short meditation in the garden and participate in a mindful eating exercise.
Creating a Garden Mandala	Students will work together to create a Mandala in the garden.
Greece	
Athens and Sparta: A Conversation Between Two City-States	Students will learn the differences between two rival city-states in Greece around 500 BCE.
7th Grade- Medieval History	
Legacy of the Roman Empire: Botanic Names	Students will learn about botanic (scientific) naming of plants using the Latin language.
Textiles in Ancient Mali	Students will learn that textiles can reflect how geography and religion influence the development of civilizations.
Food and Agriculture in Mesoamerica	Students will learn about crops native to Central and South America, the agricultural techniques used to grow them and their importance as food items in ancient societies.
Mayan Companion Planting: The Three Sisters	Students will learn that the Mayan civilization (2600 B.C. to 900 A.D.) is well known for their "companion planting" technique, called the Three Sisters, which involves planting corn, vine beans and squash together on a mound for their mutual benefit.
The Columbian Exchange	Students will learn how the Columbian Exchange had major social, economic and health impacts on the world. They will draw connections to how the Columbian Exchange shaped the world they live in. (Companion lesson: Who Knew There Used to Be Lima Beans in Mar Vista?)
A Potato With a Past	Students will read "A Potato With a Past" to learn about the history of the Makah Ozette Potato and be able to compare and contrast the concept of "fast food" and "slow food".
8th Grade- United State History	
The Starving Time at Jamestown	Students will read "The Starving Time at Jamestown" and learn why most of the colonist there died of starvation in the winter of 1609-1610.
Food as Culture: Black-Eyed Peas and African American History	Students will learn about an important crop that came to America with the slaves during the Columbian Exchange.
Federalists and Republicans: Manufacturing vs. Agriculture	Students will learn the major differences between the Federalist and Democratic Republican's political views, particularly their disagreement about whether the early US should focus on manufacturing or agriculture.
The Cotton Gin and Slavery	Students will learn how Eli Whitney's invention of the cotton gin caused a massive growth in the production of cotton in the American South and subsequently led to the expansion of slavery.
A Potato With a Past	Students will read "A Potato With a Past" to learn about the history of the Makah Ozette Potato and be able to compare and contrast the concept of "fast food" and "slow food".
Language Arts	
6th Grade	
Laughing Tomatoes: Exploring Metaphors and Similies in the Garden	Students will read the poem "Laughing Tomatoes," and observe how the author-poet makes it come alive with metaphors and similes.
Seedfolks: What Does it Teach Us?	Students will learn how a community garden created in what was once an overgrown vacant lot brought hope, change and transformation to a low income, largely immigrant urban neighborhood. They will read a story of a nine-year old girl who catalyzed the transformation of this small piece of land and those who lived in apartments surrounding it. Students will reflect about how this story relates to their own lives.
Seedfolks: Composting and Plant Propagation	Students will recall the theme and details of the book Seedfolks by Paul Fleischman after they have read it in 6th grade Language Arts. They will review how to propagate plants by planting seeds, cuttings, bulbs, tubers and how to transplant seedlings. Prior to planting, they will prepare their garden beds by weeding and then adding compost made in their garden along with commercial compost.
Chato's Kitchen: Assessing Character and Plot Credibility	Students will read a picture book, Chato's Kitchen. They will describe the main characters, summarize the plot, and create arguments to support their assertions regarding whether or not the characters credible and whether the plot is believable.
History of Agriculture in LA: From Cows to Concrete	Students will learn that Los Angeles County was the agricultural center of North America until the 1950's. Its agricultural empire spurred the population growth that eventually caused the area to be paved over when suburbs replaced farmland. Nowadays urban farmers are trying to bring some of that back.
Who Knew Their Used to be Lima Bean Fields in Mar Vista?	Students will learn that during the 1930's, Mar Vista (a section of Los Angeles where Mark Twain Middle School is now located) was called the "Lima Bean Belt of the Nation." The temperamental crop thrived in the moist, fertile fields of Mar Vista where there were few buildings. Students will learn about the early history of the lima bean and about Mar Vista's transition to a residential neighborhood after World War II.
7th Grade	

Anne Frank's Window	Students will learn how a chestnut tree, outside the attic where Anne Frank and her family and friends were forced to hide during WWII, gave her hope and comfort during the worst of times.
The Outsiders, Robert Frost and Extended Metaphors	Students will read an excerpt from the Outsiders that refers to Robert Frost's poem, "Nothing Gold Can Stay." They will then analyze the poem's extended metaphor and discuss the author's use of nature for themes in his writing. Possible activities included writing their own extended metaphor, illustrating the poem, and discussing life cycles in the garden.
Not Enough Water? Look Up!	Students will read an Op-Ed article from the Los Angeles Times about where their city's water comes from. They will develop arguments pro and con for capturing rainwater in order to meet their city's water needs.
Writing Persuasively about Earthquake Preparedness	Students will learn how to create an Earthquake Kit for their homes. They will write persuasive arguments about why people living along fault lines should be prepared for an earthquake.
8th Grade	
Resilience Metaphors in Poetry and Prose	Students will read the poem, "The Rose that Grew from Concrete," by Tupac Shakur and an excerpt from "A House on Mango Street," by Sandra Cisneros to explore personification and metaphors that represent resilience. (This is particularly relevant for middle school students, many of whom are going through difficult times as they transition to adulthood.)
The Giver: Gardening and Food-Related Occupations	Students will hold a job "ceremony" after reading this passage in the Giver. Students will learn about different occupations related to gardening.
Monarch Butterflies: Reading Analytically	Students will learn how human activity and global warming impacts the migration and survival of the monarch butterflies that live in their garden.
Monarch Butterflies: Writing Persuasively	Following the previous lesson, "Reading Analytically about Monarch Butterflies," students will write a persuasive argument about the need to protect their natural habitat and address climate change.
Science	
6th Grade- Earth Science	
Does Dirt = Soil? Collecting Soil Samples	Students will understand how topsoil is formed, why a good balance of soil components is needed for healthy plants, and how they can add components to "balance" the soil prior to planting.
Measuring Your Soil Samples	Students will learn how to analyze a soil sample to determine the percentage of its component parts.
Analyzing Your Soil Samples	Students will analyze their soil samples and determine if their soil is ready for planting.
Earthquakes and Ecosystems	Students will learn why earthquakes happen in California and about the impact they can have on ecosystems.
Compost as a Soil Amendment and Worm Casings Fertilizer	Students will learn how to make compost to add to the garden as soil amendment and worm castings to use as an organic plant fertilizer. They will learn that these are examples of naturally recycling "waste" in order to grow healthy food. They will create a mini compost pile and, if time, a worm bin.
7th Grade- Life Science	
Plant Parts and their Functions	Students will learn the structure and function of the four main parts of a plant (roots, stems, leaves, and flowers/fruit).
Flower Power: Pollination	Students will learn the anatomy of a flower and how flowers can self- and cross-pollinate in order to reproduce.
Genetics in the Garden	Students will learn who Gregor Mendel was and his contribution to the science of genetics. They will learn to fill out a Punnett Square using real items from the garden in order to determine the possible genotypes and phenotypes of its offspring.
The Carbon and Nitrogen Cycle	Students will learn that the element Carbon (C) is taken from the atmosphere by plants through a process called photosynthesis. Animals, including humans, get Carbon by eating plants or eating animals that have eaten plants. Carbon is an element found in all living things and those that have died.
Plant Metabolism-Photosynthesis: How Plants Make Their Own Food	Students will learn about the process of photosynthesis, or how plants make sugar. Using examples of plants in the garden, students will be able to visualize why light and water are essential for plant growth.
Plant Metabolism-The Balance Between Photosynthesis and Cellular Respiration	Today students will learn about cellular respiration, or how plants use that food for energy and decrease their weight. Students will run an experiment about a plant's changing weight using different light conditions to illustrate the balance between photosynthesis and cellular respiration.
How Does pH Affect Plant Growth?	Nitrogen (N) is an element found in all living things (plants and animals). It is also an important part of non-living things like the air above (atmosphere) and the soil below. Nitrogen atoms move slowly between living things, dead things, the air, soil, and water.
Compost as a Soil Amendment and Worm Casings Fertilizer	Students will learn how to make compost to add to the garden as soil amendment and worm castings to use as an organic plant fertilizer. They will learn that these are examples of naturally recycling "waste" in order to grow healthy food. They will create a mini compost pile and, if time, a worm bin.
* Additionally, all lessons from the Food Literacy and Health sections are applicable to this unit.	
8th Grade- Physical Science	
Oh No! Bee Colony Collapse	Students will learn that bee populations are in decline and the consequences this has on the plants and animals they eat. They will learn that bees are critical to agriculture and will gain a better understanding of several of the factors that scientists think are causing bee colonies to decline in recent years.
Compost as a Soil Amendment and Worm Casings Fertilizer	Students will learn how to make compost to add to the garden as soil amendment and worm castings to use as an organic plant fertilizer. They will learn that these are examples of naturally recycling "waste" in order to grow healthy food. They will create a mini compost pile and, if time, a worm bin.
Why and How to Save Seeds	Students will learn why and how to save seeds from plants. They will see how seeds are the source of life. The sole purpose of a plant is to reproduce. Seed production is the most effective way of ensuring biodiversity, genetic diversity, and a healthy ecosystem. Seed saving enables flowering plants to avoid extinction. Seeds are also a source of food for humans and animals.
Why Buy, Why Eat Organic	Students will learn to distinguish between organic and conventionally grown produce. They will also learn why it is healthier and more environmentally friendly to choose organic foods.
How Does Your Trash End Up In the Ocean?	Students will learn the difference between a city's storm drain system and its sewer system. They will learn that rain is not the only water that pushes trash into the ocean or rivers. This runoff ends up polluting the waterways and harming wildlife and humans. Ways humans can reduce this pollution are discussed.
Do the Rot Thing	Students will understand how organic material decomposes in compost.
Math	
6th Grade	
Measuring with Rulers	Students will review and practice the basic applications of measurement.
Measuring Perimeter with Rulers, Yard Sticks, and Measuring Tape	Students will learn to measure the perimeter of a garden bed using a ruler, yard stick or measuring tape (sewing or carpenter's). This is the foundation lesson for later ones that teach how to measure the area and volume of a garden bed.
Review. Measuring Perimeter	Students will practice using measuring tools to measure the perimeter of rectangular objects in the garden. *Note: This lesson is meant to give students more practice using measuring tools and calculating perimeter. If students had a good grasp on it after the last lesson, this one can be skipped.
Measuring Area and Volume	Students will practically apply the formulas for area and volume to measure a raised or inground rectangular bed in their garden. They will analyze why they would need to know both of these pieces of information when they are planning to plant seeds or seedlings in their garden beds.
Square Foot Planting	Students will use the skills they have learned regarding measuring the area of garden beds to create a lay-out for their own bed. They will pick several plants and determine how much space each seed will need to grow. Using this information, they will design and then plant a garden bed.

Plotting Coordinates	Students will use seeds as manipulatives to practice plotting coordinates on a plane, then identify plants using a system of coordinates in a garden bed.
7th Grade	
Farmers' Market Using Unit Rate	Students will identify produce from the garden that can be sold at a farmer's market and create price points for each product to learn about unit rate.
Proportions: Drawing a Scale Model of Your Garden	Students will solve real-world geometry problems by creating a proportional scale model of their school garden. They will use this information to determine how much fencing will be needed to enclose the garden and how to determine the cost of the enclosure.
Soup Series:	
Soup Ingredients: Percentages and Equivalent Fractions	Students will use a variety of beans and/or grains from the garden to understand percentage, translate amounts, and change percents into fractions.
Making Soup: Manipulating Recipes	Students will create their own soup recipe and adapt the recipe to serve different numbers of people.
Eating Soup: Analyzing Nutrition Facts	Students will analyze the nutrition facts of a can of black bean soup. They will learn how ingredients are usually measured, what percent daily value indicates, and how to convert nutrient amounts for different serving sizes.
8th Grade- Math	
Volume: Cylindrical Containers in the Garden	Students will measure cylindrical containers filled with soil to calculate volume of individual containers and estimate amount of soil needed for rectangular garden beds.
Similar Triangles: Shadow Measurements	Students will measure the height of trees in the garden and the trees' shadows to predict the length of their own shadows. These shadow measurements will help illustrate and reinforce the concept of similar triangles.
Solving Linear Systems: Measuring Garden Beds	Students will learn to solve linear systems using garden-based word problems. They will check their answers by going out into the garden and measuring garden beds with a tape measure. Because of the complexity of this concept, we recommend instructors teach this concept before coming to the garden. This lesson will likely take two days to complete. The first day will consist of word problems and can be done in the classroom. On the second day, students will come to the garden to measure garden beds.
Plotting Rate of Growth	Students will collect, measure, and record the heights of radishes over five weeks. They will plot these data points, determine the slope, and construct a linear equation from their data. (Note that this lesson is paired well with the two Plant Metabolism lessons for 7th grade science, which also use radish plants.)
Mathematics in Nature: Fibonacci Numbers and Phi	Students will learn how mathematics, specifically the number phi and the fibonacci sequence, play a role in plants.
Wheat Series (can be used as individual lessons, or a year long project):	
Measuring Average Growth of Wheat Stalks	This lesson requires student involvement throughout the year. The teacher can use a Gardening 101 lesson to let students plant wheat in their own garden bed. Every two weeks, they should come to the garden and measure the growth of their wheat with yard sticks. When students have collected enough data points, they can plot the data on a scatter plot. From this, they will draw a line of best fit, calculate the slope, and determine the average growth rate of the wheat.
Measures of Central Tendency with Wheat Berries	Students will determine the mean, median, mode and range of the number of wheat berries that grow on their harvested wheat stalks. With this data, they will create box and whisker plots and histograms.
Cooking with Fractions: Baking Bread	Students will learn to measure ingredients using fractions to bake bread. They will learn to cut the recipe in half.
Health	
Comparing Circulatory/Vascular Systems of Animals and Plants	Students will learn some of the similarities between animal circulatory systems and plant vascular systems. They will learn that trees and humans both need each other to survive. They will learn how oxygen is transported throughout humans from plants.
Food Literacy	
Nutrition and the Six Essential Nutrients	Students will learn what the science of nutrition entails and the six nutrient groups that are essential to human functioning.
Water in the Human Body	Students will learn that water is the major component of most body parts- up to 60% of the human body is water- and what water does for each of these parts.
Understanding Ingredients: High Fructose Corn Syrup	Students will learn to read food labels to determine what ingredients are present in a product. They will watch an excerpt from Food Inc. to learn about the prevalence of high fructose corn syrup in our food system and its impact on the public's health.
Reading Nutrition Facts: Fats	Students will learn how to read a Nutrition Facts label and how to determine if there is a healthy amount of calories and fat in a food.
Reading Nutrition Facts: Sugar	Students will continue to analyze Nutrition Facts labels, this time focusing on serving sizes and added sugars.
Re-think Your Drink	
Calories and Portion Sizes Around the World	Students will learn about what calories are and how both (1) the amount of calories they consume and (2) portion size affect their weight and health. Students analyze the differences in food consumption (i.e., calories consumed and portion size) between developed (e.g., the United States) and developing countries (e.g., Somalia).
Food Advertisements	Students will read and watch several food advertisements that target teens. They will discuss how their food choices might be impacted by ads and will discuss why this might not be in the best interest of their health.
Why Buy, Why Eat Organic	Students will learn to distinguish between organic and conventionally grown produce. They will also learn why it is healthier and more environmentally friendly to choose organic foods.
Obesity in America	Students will learn about the severity of the obesity epidemic in the United States and its consequences. Students will work together to come up strategies for preventing obesity at school and at home.
Water and Sustainability	
History of Water in the LA Basin	Students will learn where the indigenous people (Native Americans called the Tongva [also referred to as the Gabrieleno or San Gabriel Band]) in the L.A. Basin got water when they first settled about 8,000-10,000 years ago. Then students will also learn where Angelenos get their water today.
Water: Why We Need to Conserve It	Students will understand that there is a finite amount of water on our globe and for this reason — as well as the ongoing drought in the Western U.S. and global warming — why we all need to conserve water. They also learn various ways they and residents in Los Angeles can conserve water.
Do the Rot Thing	Students will understand how organic material decomposes in compost.
How Does Your Trash End Up In the Ocean?	Students will learn the difference between a city's storm drain system and its sewer system. They will learn that rain is not the only water that pushes trash into the ocean or rivers. This runoff ends up polluting the waterways and harming wildlife and humans. Ways humans can reduce this pollution are discussed.
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Seasonal and Multicultural	
Earth Day: How We Can Take Action	Students will gain a better understanding of the history of Earth Day and why it came about. Students will learn about some local successes of the environmental movement and have the opportunity to write a letter to an elected representative urging action on environmental concerns of their own.

Sí Se Puede: The Story of Cesar Chavez	Students will learn the story of the famous farmworker/civil rights advocate Cesar Chavez. They will create birthday cards to him acknowledging some of the things he did to try to improve working conditions for those who plant, maintain, and harvest the fruits and vegetables produced in the US.
Japanese Scavenger Hunt	Students will participate in a scavenger hunt which makes connections between elements of Japanese cultural history and items found in the garden.
Day of the Dead	Students will learn how the "Day of the Dead"-- celebrated first in Latin America --relates to the life/death/life cycle in the garden and to the autumn migration of the monarch butterflies to Mexico at about the same time as "Day of the Dead."
Art	
Cuneiform Writing in Sumeria	Students will learn about one of the earliest known examples of writing, made with sticks using wedge-shaped strokes on clay, stone, metal or wax, that originated in Sumeria about 4,000 BCE. They will have the opportunity to write in the cuneiform style on clay using symbols for items in their garden.
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