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# Camden's Garden Literacy Handbook: Schoolyard Gardens

A Collection of Available Resources and Lesson Plans for the Classroom and  
Garden ----- **Volume 1**

[www.healthycamden.blogspot.com](http://www.healthycamden.blogspot.com)

Middle School and High School • Garden and Environmental Justice Curriculum • Year-Round

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CAMDEN CENTER FOR TRANSFORMATION [www.camdencenterfortransformation.org](http://www.camdencenterfortransformation.org)

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[www.cleanaircommunities.org](http://www.cleanaircommunities.org)

The purpose of this curriculum is to empower the youth and teachers of Camden to start their own schoolyard gardens and partner with local community gardens. This curriculum journeys through how Camden used to be, into what went wrong in Camden, and finally sustainable solutions that transform our problems into resources. This curriculum gathers together the available resources for gardening in Camden, while focusing on the intellectual and leadership development of the middle school and high school students of Camden.

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# At Home in Camden

## LESSON 1: DEVELOPING A SENSE OF PLACE

An Individual is not distinct from his place; he is that place. –Gabriel Marcel

**Objectives: To develop a sense of place in Camden that empowers the youth of the city to creatively write about the beauty and components of the ecological systems in Camden**

**Materials: Pen, paper, DVD player**

**Standard 6.3 Active Citizenship in the 21st Century.**

**3.2.12.A.1 Engage in the full writing process by writing daily and for sustained amounts of time.**

Play the film entitled “Beautiful Camden” while you read the following to the class:

What do you remember from your childhood about the beauty and the power of the world around you? What from your growing up years comes to your mind when you think about the natural world? Perhaps you remember your grandfather’s garden, the roses, tomatoes, cilantro, and peppers. Perhaps you remember fishing with your friends in the river, running inside after being caught in the rain. Perhaps you remember climbing a tree, counting stars, or being a little frightened during a thunderstorm. What animals come to mind—pet cockatiel, dog Fido? Do you remember a particular tree a weeping willow, the scent of a pine tree, the changing locust leaves? Perhaps you remember the changing seasons most clearly— autumn’s crisp air and bright skies, playing in the snow cover of winter, the freshness of spring and the days that are getting longer

and the songs of birds and flowering trees, or maybe you most clearly remember summer swimming in a pool or a lake or getting together with your family in the long summer evening.

Your **environment** is the community of living and non-living surroundings whether you are inside or outside, it is always surrounding you.

Take the next 15 minutes and have the class begin to write its beautiful memories of Camden. This exercise may be taken home to finish. The children should share with each other after completed.

Ask the students:

-To write stories about the three rivers of Camden (Delaware, Newton, Cooper).

-Where does the Delaware River flow? (80 miles to the Atlantic Ocean in the Delaware)

-Does the Delaware River flow through mountains? (Yes, the Delaware River flows through the mountainous Highlands in Northern New Jersey)

-Did you know that the Delaware River is the longest free-flowing (no dams) river east of the Mississippi River?

-Walk with the class outside and nature walk. Look for places that are beautiful/special. Write these down

-Look for places that might be good for garden locations:

- Outdoor space for future site of vegetable garden ideal locations are: 1) facing south; 2) have good direct full sunlight; 3) near water spigot/downspouts. Also keep in mind other immediate needs for the garden space: 1) it's really nice to have a tree at the edge of your garden to work in the ecosystem/soil/shade of the nearby tree; 2) NEVER plant your garden near a black walnut tree. They will kill everything; 3) look for areas around the garden where you can have a compost bin and a possible tool shed.

Visit [www.healthycamden.blogspot.com](http://www.healthycamden.blogspot.com) and ask the students to explore it.

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# At Home in Camden

## LESSON 2: TYPES OF SOIL- A SHAKE TEST

**Objectives:** To learn about the various types of soil, particularly the type of soil in an area you might consider having a garden

**Materials:** Pen, paper, 1 mason jar per group of four students, 1 trowel per group of students

**Science Standard 5.1, 5.4**

Soil comes in layers: topsoil is a mix of organic matter (decomposed plants) and inorganic matter (rock, sand, silt, and clay). The bottom layer is the subsoil, usually a mix of clay, silt, and sand from decomposed rock. Topsoil (especially when it is full of worms, compost, humus, and lots of organic matter), is best for your garden. Most soil is not just dirt, but a mix of different sizes of pieces of broken rocks, decaying matter, and living organisms.

There are four main types of soil: sand, silt, loam, and clay. This test separates soil into layers from large to small: sand and gravel first, then silt, and then clay. Go outside and dig a few inches down into the soil where you would like to start your garden. Pulverize a few handfuls of dry soil to dust, or like mashed potatoes if it's wet. Fill a clear glass jar half full with soil and half full with water. Add a teaspoon of salt to help the clay settle faster, and shake hard until the mixture has distinct layers

**WATCH:** Rocks and sand will settle very fast on the bottom, five to ten seconds for coarse sand. After 30 minutes your silt level will settle on top of the gravel and sand. Try to mark the levels where the sand and silt have settled. The remaining top layer is a mixture of clay and water. Clay particles are smaller than silt and they are sticky if you rub them between your fingers while the silt is lost. Wait one week to determine the percentage of clay in the jar. The different types of

soil are different sizes. The percentage clay/silt/sand will help you to determine what types of flowers and vegetables will grow best in your type of soil.

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# At Home in Camden

## LESSON 3: NATIVE PLANTS, BENEFICIAL INSECTS, AND POLLINATION

**Objectives:** To learn the relationship between loss of habitat and loss of pollinators, and the important role of native plants in conserving water, reducing pesticide use and the consequences of pesticide use

**Materials:** Pen, paper, 1 mason jar per group of four students, 1 trowel per group of students

**Science standard 5.3, 5.4**

Every year, the food production in the United States is dependent on pollinators such as honeybees and butterflies. In recent years, over one-third of the honeybees in the United States have died. The chemicals that FACTORY FARMS spray on their crops as pesticides kill many of these pollinator insects. Additionally, when natural habitats are destroyed and replaced by grass or concrete, these beneficial insects lose their sources of food and habitat.

**Native Plant Society of New Jersey:** Natural habitats help to reduce the amount of storm water and chemicals that flood our streets and pollute our waterways. Explore the Native Plant Society website for themed Native Garden planting. The NPSNJ website also has information about raingardens and native plants/trees listing by County [http://www.npsnj.org/lists\\_njplants.htm](http://www.npsnj.org/lists_njplants.htm)

**Beneficial Insects** are insects that benefit your garden. They are the natural predators of garden pests. Ladybugs and praying mantises are some of the most common beneficial insects to our area. The Master Gardener's Horticultural Extension has information to help you deal with a pest problem. With the students, identify the insects. Please feel free to post the photos through

[www.healthycamden.blogspot.com](http://www.healthycamden.blogspot.com) to help other classrooms identify local pest problems. Take for example: Many Delaware Valley farmers have struggled with the Harlequin Bug in the fall. Perhaps there is a beneficial insect that your classroom has identified that eats Harlequin bugs. Maybe your classroom can help to identify and use the scientific method to determine research and trial based problem solving.

**Pollinators Video Link** from [healthycamden.blogspot.com](http://healthycamden.blogspot.com)

From this website you can also find the links to order ladybugs and praying mantises to release in your garden as beneficial insects.

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# At Home in Camden

## LESSON 4: DECORATE THE TOOLKIT BOX (OPTIONAL)

**Objectives:** To have the students take ownership of the Toolkit through visual design

**Materials:** scissors, glue, and magazines

Now that you have begun to use this toolkit, it is now time to personalize it toward your own classroom community. This can be as simple as flipping through magazines and cutting out pictures of healthy behaviors for people or plants and animals in their natural habitats. Collect these pictures from the class and glue/decoupage them onto the outside of the Toolkit Briefcase.

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# At Home in Camden

## LESSON 5: HOW CAMDEN USED TO BE

**Objectives:** To understand what happened to Camden to empower the youth to make a substantial change. Camden had all of the resources available to be a booming city for hundreds of years. It's close to the river, its close to Philadelphia, New York City, and Washington D.C., yet something has happened. Through this lesson the students will learn that if the city had the resources available to be a once-thriving city, then it has the resources available to thrive again.

**Materials:** Nike and the Food System Exercise

**Science Standard 5.2, Social Studies Standard 6.1**

Camden has not always been the way that it is today. In fact, it was one of the greatest American cities with the lowest unemployment rates. There were 28 movie theaters in the city through the 1960's.

When Walt Whitman was living in Camden he wrote about "A City Invisible." Camden was the place that made everything from battleships to kitchen sinks.

In 1967, when the NY Shipyard closed, 36,000 people (mostly Camden residents) lost their jobs. Around the same time, RCA and Campbell's Soup moved some of their factories to Central and South America in order to make more profit. When corporations from one country are operating in another country, it is one form of a process called **globalization**. (Campbell's Soup has moved its Corporate Headquarters back to Camden.)

By moving abroad to less developed countries, the factories could make more profit due to:

1. Lower wages in other countries
2. Lower property values and/or rent

3. Many of these other countries had fewer and/or less environmental regulations. This meant that the companies did not necessarily have to buy pollution control equipment or take other steps to reduce their pollution. As a result, these companies' costs were lowered, and they were likely polluting the air, soil, and/or water in the countries where they relocated. Have the students research the NY Shipyard (in Camden) closing in 1967.

Camden Race Riots

What is the current unemployment rate in Camden? What is the national average?

Urban flight

Economists divide most of the world up into two main categories:

**More developed countries (MDC):** The U.S., Canada, Japan, most countries in Europe,

**Less developed countries (LDC):** Mexico, most countries in Africa, Central America, South America.

There are also countries such as India and China that have quickly becoming more developed countries but still remain LDCs.

**COLONIZATION:**

Great Britain settled 13 colonies in America in the 17<sup>th</sup> and 18<sup>th</sup> centuries. Native Americans already inhabited much of the land on which these colonies were developed. During this time, the British had colonies all over the world including India. The British took natural resources like fiber and dye from India and hired the Indians to work in their factories to make fabric. The Indians were paid so little for their work that they could hardly afford to purchase the fabric that they made in the factories.

Exploitation is the term used when one party reaps all the benefit and the other party either does all the work or has things they owned or used taken away from them without appropriate compensation. Under exploitation, the rich keep getting richer and, the poor keep getting

poorer. One typical consequence of exploitation is that the poor (the exploited) have to live with more pollution.

Often, the factory owners will tell the workers that they are just lucky to have jobs, even though they make far less money than the factory owners, or workers from other countries.

**In the U.S., there was a shift during the industrial revolution towards large highly intensive factory farms, away from the working American family farm beginning in the 1900's.**

The best publications that I have come across for teaching youth the global economic system, local, and regional food systems under industrial capitalism are in Sara Coblyn's book ***French Fries and the Food System: A Year-round Curriculum Connecting Youth with Farming and Food.*** \*This book has a thorough explanation of farm-stand style and cooperative leadership development as a model of urban schoolyard gardens put together by the members of the Food Project in Massachusetts.

This book is full of exercises that contribute to a better understand of globalization and the ecological, economic, and social aspects of sustainability. Her exercise entitled "Nike and the Food System" is a board game that goes through quotes taken from a consumer, consumer activist, Michael Jordan (famous Nike endorser), CEO of Nike, congressmen, a kid wearing Nikes, reporters, and the competition to create an interactive experience on some of the unintended social, economic, and ecological consequences of globalization. I like this exercise and so many more in French Fries and the Food System because it connects the Youth to the shoes on their feet and the global economy.

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# At Home in Camden

## LESSON 6: WHAT WENT WRONG IN CAMDEN

**Objectives:** To learn the specific context of the downfall of Camden to creatively think and act to improve the city

**Materials:** Research Materials

### **Standard 6.2 World History/Global Studies**

When the businesses left Camden in the 1960's and 1970's after the effects of globalization, the race riots, and the creation of the suburbs that led many people to leave the city, Camden's economy collapsed. Businesses are important, as they provide jobs for residents and pay taxes for the city. A city with no businesses has no tax-base. Taxes are needed to support schools, the police and fire departments, parks, the roads, and to pay all types of public services, including the salaries of government officials and employees.

Beginning in 1984 Camden was designated as an **Enterprise Zone**. Enterprise zones popped up all over the country in urban areas where the industries had left, leaving a vacuum of few jobs and a weak tax base to support the city of Camden. Enterprise zones encourage the factories to locate in struggling areas by lowering their costs through lower taxes and reduced regulatory requirements.

The model of the enterprise zone has not necessarily proven effective in Camden because the majority of businesses that it has attracted do not employ many Camden residents. The substantial tax breaks to these businesses, which are mostly along the waterfront, means that Camden loses a substantial amount of money from the most valuable properties paying a PILOT payment or Payment In Lieu of Taxes on the waterfront.

Over the years, Camden County and the state of New Jersey continued to locate many of its polluting industries in Camden, City because it was seen as an area that was already blighted, and many people did not want decreased property values in the suburbs. As a result, Camden has become a receptacle of waste and pollution. If you flush your toilet anywhere in Camden County the waste comes to Camden through the waste treatment plant (CCMUA). Camden receives the majority of the trash from the county at the CCERC (Camden County Energy Reclamation Center) where all of the trash is incinerated.

In 2002, the city of Camden was taken over by the State of New Jersey. New Jersey state officials said that Camden was unable to support itself financially anymore.

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# What we can do to change Camden

## LESSON 7: TRANSFORMING OUR PROBLEMS INTO RESOURCES

**Objectives: To define and identify sustainable business options within the city of Camden, and develop the creative thinking that identifies problems as resources**

**Materials: DVD player**

**Standard 6.3 Active Citizenship in the 21st Century**

In the city of Camden, the landscape is incredibly ripe to envision and develop **sustainable businesses** that can benefit all people. Look for win-win outcomes in sustainable businesses. Sustainable Development means creating jobs that are good for the environment and people. These jobs can use natural resources, but not at the expense of future generations having access to those resources. Sustainable development often makes the environment healthier after the

jobs are created then before. **Sustainable Development** benefits **a)** people (social justice); **b)** places; **c)** businesses (it can be profitable)

--Waste stream ethanol is one example of sustainable development. When the first cars, like the model T, were invented they were designed to run on either gasoline or ethanol. Farmers could very easily produce ethanol on their farms. Ethanol can be made in a distillation process from anything that has a sugar or a starch. If a farmer had an apple farm, the farmer could take all of the excess apples that fell to the ground, or the ones that weren't eaten, and turn them into ethanol for his/her car. As you drive or walk around Camden and you see all of the vacant empty lots think about what we can do with the land that can make Camden more sustainable.

-- One of the thriving sustainable businesses is the Center For Transformation's Rain Barrel business.

**Rainbarrels:** watch Rain Barrel Video. The Center For Transformation in Camden operates a rainbarrel business. The youth from the neighborhood are employed to make rainbarrels out of food grade barrels from the factory down the street. This factory was paying \$6 a barrel to get rid of them. Now the owner of the factory throws barrels over the fence at Eve's Garden (under the Center For Transformation). Rainbarrels are very valuable. They help gardeners to catch water under their gutters to water their gardens. Tie this lesson into the storm water run-off/ water table lessons.

**Community gardens:** In the city of Camden there are thousands of abandoned lots. Abandoned lots are often unsightly, collecting trash and possibly illicit activity. Community gardens make the neighborhood more beautiful, build community through people coming together, increase access to healthy food, improve property value, and can become a source of income. Visit [www.healthycamden.blogspot.com](http://www.healthycamden.blogspot.com) for a developing list of community gardens in Camden and information about the Camden's Children garden and their amazing work in the city establishing gardens.

Have the students write an essay. Ask them: What are some of the ways that a community garden might benefit the people, places, and businesses around Camden?

Have the students research the South Jersey Green Dining Association.

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# What we can do to change Camden

## LESSON 8: CAMDEN AND SUGAR INTAKE

**Objectives:** To understand the high levels of sugar intake in Camden and the consequences, to understand healthy eating as a matter of personal development

**Materials:** Notebooks, pen, DVD player, *King Corn* (available on Amazon or netflix)

**Standard 6.3 Active Citizenship in the 21st Century, 3.2.12.A.1 Engage in the full writing process by writing daily and for sustained amounts of time.**

You, as the teacher, are around the students almost all day. You are close to the effects of unhealthy calories on the behavior of the students. Many middle school and high school students don't eat lunch at the school: they often find the lunches to be unappetizing.

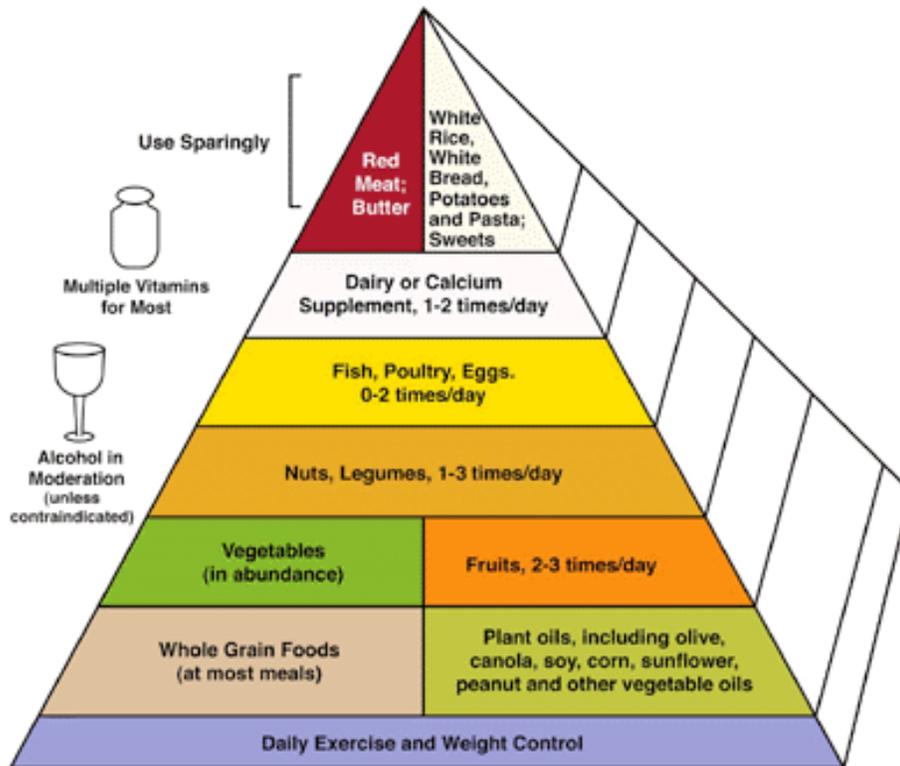
**Assignment:** Give the students small composition books/make small booklet. Have the students personalize their own books. Each student is to track everything that he/she eats (for one week). Start off with breakfast, and then add the other meals. Begin to explain where these foods originally came from. Keep taking it further and further back. "Yes the Corn Flakes were packaged in Michigan, but where did the corn come from for the corn flakes? Research high fructose corn syrup, watch the movie *King Corn.*, *Food Inc.*, or *Fresh*.

The majority of students are eating unhealthy food all day. The majority of students will come to learn that they eat far too many items with high fructose corn syrup and sugar and hardly any vegetables. There is a full array of reasons that the youth of Camden are basically living on junk food and sugary drinks.

When the old USDA Food Pyramid came out in 1992 it was highly criticized, particularly for its recommended intake of carbohydrates. Many people stated that following the food pyramid

actually made them fat. In 2004 a new food pyramid was released following the latest and best science: <http://www.mypyramid.gov/>

News



## ARTICLE:

### Camden, NJ Targets Diabetics in Citywide Diabetes Collaborative

*Posted by Anthony Gold on Wed, May 20, 2009 @ 02:30 PM*

Camden health officials gathered downtown Monday to herald a citywide initiative designed to improve diabetes treatment.

The city's three hospitals, federally qualified health centers, community health organizations and six independent primary care providers have teamed up to form the Camden Citywide Diabetes Collaborative. Together, these organizations will begin offering more educational resources for diabetics, improving primary care services and targeting the most serious diabetic hospital users through an outreach program. The project is funded by a \$2 million Merck Company Foundation grant.

"Our hope is that this program will be a model of health-care change for not only people with diabetes -- but for all Americans," said Cooper University Health System endocrinologist Steven Kaufman. Nationwide, nearly 24 million people, or about 8 percent of the population, have diabetes, according to U.S. Centers for Disease Control and Prevention estimates.

The figures are higher for more minorities, affecting more than 10 percent of Hispanics and roughly 12 percent of African-Americans. Based on statistics from the National Institutes of Health, Kaufman estimated that every hour, 182 Americans will develop diabetes, eight will have amputations, two will go blind and 26 will die from conditions related to diabetes.

During a recent five-year period, 6,295 Camden residents visited the city's local hospitals 48,000 times for conditions related to diabetes. Altogether, they racked up \$1.2 billion in charges.

"Diabetes is one of the most insidious diseases we try to manage here," said Alexander Hatala, CEO of Our Lady of Lourdes Health System. But with regular treatment, he said, diabetics have a 50 percent chance or better of preventing heart disease, strokes, amputations, blindness and other complications that can develop from their chronic condition.

"We look forward to making a tremendous difference in the lives of the people in the city of Camden," he said.

Source: [Courier Post Online](http://www.courierpostonline.com/) <http://www.courierpostonline.com/>

Diabetes is a disease in which the body is unable to produce or unable to properly use and store glucose. Glucose backs up in the bloodstream--causing one's blood glucose or "sugar" to rise too high. Diabetes greatly affects the population of Camden. Direct links have been drawn between high fructose corn syrup and Type II diabetes.

<http://www.diabetes.org/diabetes-statistics.jsp> American Diabetes Association Statistics

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# What we can do to change Camden

## LESSON 9: INTERACTIVE COMMUNITY FOOD ASSESSMENT

**Objectives: Become familiar with the current food system in Camden and be able to critique it. To research and understand the high levels of sugar intake in Camden and to fill the gaps in the current Community Food Research in Camden, identify healthy food options available in Camden**

**Materials: Notebooks, pen**

### **Social Studies Standard 6.3**

Like many cities across the U.S. healthy food is often not available in Camden. In this city of 80,000, Pathmark is the only major grocery store.

**Community Food Assessments** are done to analyze the availability of fruits, vegetables, bread, dairy, and meat. 100% whole wheat is the healthiest type of bread. Just because the ingredients say “wheat” does not mean that it is any healthier than white bread (which is also made of wheat). The same goes for juice: the label must say “100% fruit juice” in order for the juice to be healthy. If the label says apple juice but does not say 100% apple juice it usually has a lot of added sugar.

Indicators for healthy eggs would say “organic, cage free.” The meat labels should read “organic, grass-fed” meat. This community food assessment assignment must be reported to the website <http://www.camdenfoodassessment.blogspot.com/>

Visit [www.healthyhcamden.blogspot.com](http://www.healthyhcamden.blogspot.com) from the links section click on “Camden Food Assessment” (<http://camdenfoodassessment.blogspot.com/>). At the bottom of the webpage is the most current Camden community food assessment, done in 2005. The map is linked on the side. Have the youth familiarize themselves with the list at the

bottom of the page. Different types of scientists and college students collected the map and the list. Emphasize to the youth that they are the experts of this community food assessment, and they have **a lot** to bring to this assessment.

Have the youth write down a list of all the locations where they (or their family members) buy food. They should interview their family members, and visit their local neighborhood corner stores to write down **all ADDRESSES**. Look at the data at the bottom of the community food assessment map to determine whether their location has been identified in the previous food assessments.

### **SHOW COMMUNITY FOOD ASSESSMENT VIDEO DVD**

#### FOR EACH STORE VISIT

1. Always write down the address of the store that you are entering
2. Wheat Bread: Is there any bread in the store that reads 100% wheat bread.
3. Is milk available in the store? Is there skim milk available?
4. Read the ingredients of the products that you regularly buy. Of all the products that you buy how many items do not contain **HIGH FRUCTOSE CORN SYRUP?**
5. List all the fruits and vegetables that are available.
6. Where are the eggs from?

Trip to Pathmark

Write down any produce that is labeled **ORGANIC**

**Extra Credit:** Write down the fruits and vegetables you would want to grow in your garden.

Write down the vegetables and research their countries of origin. (Seed To Seed is a great resource for cultural stories of how seeds have traveled and their origins.)

2620 Mt. Ephraim Ave: **Produce Junction** specializes in fresh local fruit, vegetables, dairy, and herbs. It sells wholesale products (in bulk) at lower prices.

Have the Students POST their research findings complete with addresses at [www.camdenfoodassessment.blogspot.com](http://www.camdenfoodassessment.blogspot.com)

e-mail [aferich@gmail.com](mailto:aferich@gmail.com) for the blogsite password and in class blogging demonstrations

Many urban environments such as Camden have been described as “food deserts.” This term indicates a problem within the food system between the producers, distributors, and consumers, such that consumers do not have access to stores where they can buy healthy foods. Visit Jersey Fresh Farmer’s Market Link for updated local Farmer’s Markets in Camden and the region. You will find the AHEC Farmer’s Markets at this site for further information about the four farmers markets in Camden City. This is a great resource for **BUYING LOCAL**.

Below is a chart of the community food assessment done in 2005 by doctors and research assistants from the University of Medicine and Dentistry, NJ (UMDNJ) in Camden. The youth will fill data in places where there are holes, thus providing important data for the Community Food Assessment (CFA). Many stores are missing. The students can identify these quickly when they look at the linked map on the Community Food Assessment site. The numbers in the table are the number of fruits or vegetables that are available in the stores.

Addresses of corner stores are listed below with the available fruit and available vegetables data brought to you by Camconnect and the Camden Coalition of Healthcare Providers:

Table1

Store Address	Fruit Available	Vegetable Available
800 HADDON Ave	Apples oranges lemons	Onions potatoes peppers
1100 HADDON Ave	Apples lemons bananas	Onions potatoes peppers
1123 HADDON Ave	More than 5	8
1170 HADDON Ave		
1177 HADDON Ave		Peppers onions tomatoes
300 MARLTON PIKE		ONIONS, POTATOES
EDDY'S ON KAIGHN AVE	more than	9
276 SOUTH 7th St		
1400 HADDON Ave	More than	7
1448 HADDON Ave		
3418 FEDERAL St		
50 DUDLEY St	6	6
2926 FEDERAL St	APPLE, ORANGE, BANANA	10
2800 FEDERAL St	BANANA	TOMATO, POTATO, PEPPER, LEMON
74 S 27th St	BANANA, LEMON	6

2750 FEDERAL St	ORANGE, BANANA, APPLE	TOMATO, POTATO, PEPPER, LEMON
1200 MORTON St	Watermelon apples limes lemons oranges	Onions peppers garlic
1546 MT EPHRAIM Ave		Onions potatoes
319 N 29TH St		TOMATO, PEPPER, CABBAGE, LEMON, ONION
1500 MT EPHRAIM Ave	Lemons apples oranges peaches	More than
3150 WESTFIELD St	LEMON	ONION, POTATO, TOMATO, CABBAGE, PEPPER
3150 WESTFIELD Ave	8	10
3205 WESTFIELD Ave	APPLE, BANANA, MANGO	7
409 N 32ND St	APPLE, ORANGE, BANANA	6
3711 WESTFIELD Ave	BANANA	6
3506 WESTFIELD Ave	APPLE, BANANA, ORANGE, LEMON	TOMATO, PEPPER, CABBAGE, CARROT
3325 WESTFIELD Ave	APPLE, ORANGE, PINEAPPLE, BANANA	PUMKIN, TOMATO, CABBAGE
2947 WESTFIELD Ave	6	10
1212 YORKSHIP SQ	APPLES, LEMONS, PLANTAINS	ONIONS, PEPPERS
1196 YORKSHIP SQUARE	LEMONS, LIMES, APPLES	PEPPERS, TOMATOES, LETTUCE
740 MORGAN Blvd	BANANAS, PLANTAINS, LEMONS, LIMES	POTATOES, ONIONS, GARLIC
2421 FEDERAL St	APPLE, MANGO, BANANA	5
1844 S BROADWAY	BANANAS	
1734 S BROADWAY		LETTUCE, TOMATOES
2500 FEDERAL St	5	5
116 N 27T St	BANANA	POTATO, ONION
868 N 27TH St	BANANA	YAM, ONION, GARLIC, POTATO
964 N 27TH St		10
1270 N 27TH St	BANANAS	POTATOS, ONIONS,
3201 RIVER Rd	APPLE, PEAR, LEMON, LIME	12
3300 RIVER Rd	BANANA	POTATO, GARLIC, YAM
1600 MT EPHRAIM Ave	BANANAS, LEMONS	PEPPERS, TOMATOES, ONIONS, POTATOES
1001 RIVER Rd	15	20
2512 RIVER Rd	BANANA, MANGO	5
2220 RIVER Rd	5	15
1427 ATLANTIC Ave	LEMONS	LETTUCE, TOMATOES, PEPPERS
300 BROADWAY	APPLES, PEARS, ORANGES, LEMONS	ONIONS, POTATOES
801 ELM St	9	14
801 ELM St	9	14
740 STATE St	ORANGE	PEPPER, LEMON
500 BROADWAY	8	9
901 N 8TH	BANANA	ONION, POTATO, YAM
607 BROADWAY	BANANAS	POTATOES, ONIONS
901 YORK St	BANANA	CABBAGE, TOMATO, POTATO

454 ROYDEN St	6	7
439 STATE St	BANANA	ONION, POTATO
777 PINE St		Onions potato
700 PINE St	6	7
701 N 7th St	LEMONS, BANANAS	POTATOS, ONIONS
LOS COMPADRES GROCERY STORE  856 541-9322 6TH/ VINE ST	LEMONS, BANANAS	Potatoes
900 N 4TH ST	LEMONS	PEPPERS, POTATOS
1016 BROADWAY	Banana	5
1100 S BROADWAY	LEMONS, APPLES, ORANGES	7
		LETUCE, TOMATOS, GREEN PEPPERS, YUKA - SPANISH YAM
503 N ERIE St	ORANGES, BANANAS, LEMONS	
946 S 4TH St	Banana	14
901 YORK St	BANANA	5
402 CLINTON St	Apple banana	5
636 4th St	BANANA, MANGO	5
601 N 5th St	APPLE, ORANGE, BANANA	9
644 N. 9th St	BANANA	5
601 N 5th St	ORANGES, APPLES, BANANAS	PEPPERS, ONIONS, POTATOES
701 N 7th St	Banana	Onions potato
439 STATE St	Banana	Onions potato
738 STATE St	Banana.	Onion potato
401 YORK St	Banana	Potato onion
501 YORK St	LEMONS APPLES	PEPPERS, YAMS, POTATOES, GINGER
939 N 3rd Sycamore	Banana	Plantain onion potato
501 ERIE St		5
625 WHITE St	6	8
799 LINE St	BANANA	5
1100 BARING St	BANANA	POTATO, ONION
556 S 6th St	BANANA, ORANGE, APPLE, MANGO	5
946 S 4th St	5	12
1714 S 10th St	Lemon.	PEPPER, ONION, POTATO
759 WOODLAND Ave	LEMON	TOMATO, POTATO, ONION
1301 SHERIDAN St	BANANA, ORANGE, APPLE	7
1301 BROWNING St		5
1501 NORRIS St	BANANA	6
1505 KENWOOD Ave	LEMON	CABBAGE, PEPPER, ONION
1500 PARK BLVD	LEMON	ONION, TOMATO, PEPPER
1177 PRINCESS AVE		PEPPER, CABBAGE, TOMATO, LEMON
1101 LANGHAM Ave	ORANGE, APPLE	PEPPER, LEMON
1400 ROSE St	BANANA	5
2216 FEDERAL St	8	22

116 E. STATE St		
1901 RIVER Rd	BANANA	5
1048 N 19Th		CABBAGE, ONION
1047 N 23Th		CABBAGE, ONION, TOMATO, LEMON
901 N 2nd St		ONION, YAM
601 N FRONT St	BANANA	5
1617 Mt EPHRAIM Ave	1-5	1-5
720 Ferry Ave	1-5	1-5

To be read to students:

As we have now learned, diabetes is one of most common diseases in Camden. One critical way to treat diabetes is to consume less sugar in what we eat or drink. In the city of Camden there is one supermarket for 80,000 people—the Pathmark on Mt. Ephraim Avenue. In order to have better nutrition available to Camden residents we need to create a database of all of the locations where its residents purchase food and drinks. The information that is gathered by students like you will help us better understand the problems of diabetes, obesity, and malnutrition that affect the population of Camden.

VISIT: for more information visit [www.camdenfoodassessment.blogspot.com](http://www.camdenfoodassessment.blogspot.com)

The link “food assessment map” is a map of many of the stores. When the students look at this map they will more easily determined which stores have not even been recorded in UMDNJ’s study (table 1 above).

Assignment Day 1: The students are to go home, talk with their parents/guardians, and make a list of all of the locations in and around the city of Camden where they buy food or beverages. **THIS INCLUDES CORNER STORES and fast food.**

Make a list of all of these locations on the blackboard with the students. Have everybody contribute. If one of the locations is duplicated, indicate with checkmarks.

Assign each student to three of the stores where they purchase food or as many as necessary until all the stores are distributed. The students are to go home and visit all of the stores their assigned stores.

With a notepad, the students are to investigate:

- Make a list of all of the fresh vegetables you can buy.
- Make a list of all the fresh fruits you can buy.
- Ask the storeowner if any of the produce was grown locally.
- Make a list of all the juices that are 100% juice.
- Make a list of all the drinks that have high fructose corn syrup as one of first three ingredients.
- Go to the Bread section. See if you can find any bread that is made with 100% whole grain.
- Go to the egg section see if any of the eggs are labeled “cage free.”
- What types of milk does the store sell (skim, 2%, vitamin D added)?
- Talk with the storeowner and ask him/her if any of the food is local. Ask the storeowner why he/she selects the products that they do for the store (healthiest? cheapest? it’s what people buy?)

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# What we can do to change Camden

## LESSON 10: CULTURAL DIVERSITY IS OUR STRENGTH: A COOKBOOK

**Objectives:** To create a youth led cookbook to collect cultural recipes to share with others and to grow more appropriate gardens adapted to Camden’s culinary preferences

**Materials:** Notebooks, pen

**Standard 6.3 Active Citizenship in the 21st Century**

Read to Students: In the city of Camden there are many different ethnicities. We come from different lands and have our own food specialties. Seeds have traveled all over the world with the

people that carried them. Corn and potatoes did not make its way to Europe until after explorers such as Christopher Columbus landed in the Americas and brought them back home.

Assignment:

Have the students go home and interview their parents/guardian about where they learned to cook. Ask questions such as:

--Do these recipes have names?

--Are these recipes written down?

--Write down three recipes and bring to class

--Post the recipes to the website [www.camdenrecipes.blogspot.com](http://www.camdenrecipes.blogspot.com) e-mail [aferich@gmail.com](mailto:aferich@gmail.com) for password and blog demonstrations.

There are a lot of great references of “in-season” cooking. In-season cooking means cooking in the kitchen according to what fruits and vegetables are in season. Examples would be: peas in the early spring, strawberries in the early summer, and tomatoes in the end of summer-- Farmer John’s Cookbook, Moosewood Cookbook, MCC’s Extending the Table, and MCC’s Four Season Harvest.

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# What we can do to change

## Camden

### LESSON 11: COMPOST

#### (PREPARED BY THE SOUTH CAMDEN CITIZENS IN ACTION)

**Objectives:** Principles of Recycling by Composting, This lesson will introduce students to basic concepts of recycling by composting.

**Time to complete:** 3 months.

## Science Standard 5.4

### Introductory Activity: Waste Statistics

Begin by examining how much waste we generate. Have students start to understand this problem by keeping a log of the amount of waste they create for one day. They should record:

- What they throw out,
- The estimated weight of each piece of garbage,
- Whether it's organic,
- And if it is a recyclable product.

The next day, have the class determine the following about their garbage:

- What is the average total weight of garbage produced by students in the class?
- How much of that garbage is recyclable?
- How much of that garbage is compostable matter?
- Try to figure out the same statistics on a national level. Visit the US Census site for current population figures.

Put the information into a pie chart to determine the percentage of the waste that is organic matter. Then have them find out if we have the means to dispose of all of this wasted now and in the future.

**Optional extension:** To get more data and accurate statistics, invite other classes or schools to keep a waste log. Then share data and complete a statistical analysis. Share the results with the other classes or schools via e-mail or web site.

### Resources

Material needed

- Graph Paper

### Learning Objectives - Research and Hypothesize or Predict

#### Research Local Waste

Now have students explore how their community handles waste management. They should focus on the benefits of composting. Give them the following questions to research, or have student groups develop their own set of questions.

- How much and what kind of waste are generated in your community?
- How and where is waste dealt with in your community? (Is it incinerated, sent to landfill, etc.?)
- How long do the different kinds of waste take to break down using the different methods?
- How much of your community's garbage can be composted/

- What are the benefits of composting? How could it benefit your community?
- How does composting work? (What methods and materials are used, what is the process, etc.)?
- How much does it cost to compost?

Get in touch with your local sanitation department, environmental commission, and local environmentalist to find the answers to these questions. Use the Web sites listed below to find local listings. Ask if there is a composting program in your area, and take a field trip to the location to find out how it works and how much waste is composted. Make sure to take some compost back with you to complete the experiment.

### Hypothesis

Using all your research, create a hypothesis for this question: What impact would increased composting have on my community? How would mixing in compost affect the soil quality in my community?

### Resources

- Environmental Protection Agency: Contact Information  
<http://www.epa.gov/epahome/comments/htm>

Scroll down to the map and click on your region to get contact information for your local EPA office. Consult with local officials to get information about waste disposal in your community.

### **Learning Objective**

#### Plan Experiment and Gather Data

Now have your class do an experiment to test the hypothesis you made. If you were unable to get compost soil from the field trip, you can make your own as described or buy it. Next, dig up a sample of soil from an area with poor soil quality such as a playground or a frequently traveled path. You may want to conduct a soil test. Mix half of your sample with an equal amount of compost and put it into five large flowerpots. Put the rest of the soil sample into another five flowerpots without any compost. Plant the seeds of a few different fast-growing local plants in each pot. Make sure the conditions in each pot of soil (test soil and control soil) are the same. A group of students can be assigned to make sure the plants all get the same amount of sunlight and water. If possible, have students photograph the daily growth of the plants.

### Recording data – Teaching Method

Talk to students about what kind of data they'll need to record, how often they'll need to record it (we recommend daily), and how they should organize it. We recommend that groups of students be assigned to record the following for an individual plant over a period of two or more weeks:

- Daily plant growth and health,
- pH level of the soil (many plants grow best in soil with pH between 6 and 7),
- Amount of sunlight, water, and temperature that the plant gets.

Resources for Step 3

Material needed

- Composted soil
- Gardening tools (spade, 10 large flowerpots)
- Soil test, pH kits
- Indigenous, fast growing seeds
- Data records (Excel, or notebook or logbook)
- Camera (optional)

### Learning Objectives – Analyze the Data and Make a Conclusion

Use the data from measuring the plants to create a line graph showing the growth rate for each plant. Once complete, ask students what conclusions they can draw from the data, or have them answer the following:

- Is the soil packed down?
- What is the pH level?
- What other signs are there to show the fertility of the soil?
- How healthy are the plants in each pot?

Compare the soil quality in each pot. Using your observation and data, what conclusions can you make about the impact of compact soil on growth? Could compost be used to improve the soil quality all over your community? Are there areas in your community, such as contaminated, abandoned lots, where poor soil could be reclaimed by compost? Have students use images of the plants, and written descriptions of their findings in a written report, PowerPoint presentation, or Web page. See resources below for help.

Material needed

- For report: PowerPoint or word processing software or use Web building resources listed in teacher tools: [www.epa.gov/teachers/teachresources.htm](http://www.epa.gov/teachers/teachresources.htm) (source provided as requested)

### Learning Objectives – Take Action

Have students visit the sites listed below to get advice on planning and implementing a composting program in your school. Decide what composting method will work best – with the right equipment, it’s even possible to compost indoors if necessary. When the compost is ready, mix it into a garden at your school or a local park. (Make sure you ask permission first.) Plant a flower garden in the new, rich soil.

Resources for Step 5

Materials needed

- Composting materials as listed in the Backyard Magic site below

### **Learning Objective – Assessment**

While organizing the composting project, take pictures, write articles, and interview environmentalists (including yourselves). Keep track of how many pounds of waste composting recycled. After composting, reflect by writing about the experience and how it felt to be an environmentalist.

Send a description of the project to a local newspaper and officials. Ask them to support composting, and explain how more composting could improve the local environment. Gather all the materials made during this project and build a Web site or make a scrapbook about to share with others.

Return to the garden where you added the compost a year later to see how the garden is doing and test the soil. Analyze the new environment you helped promote and see how it made a difference! Send us your results [www.healthycamden.blogspot.com](http://www.healthycamden.blogspot.com)

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# Agricultural Systems

## LESSON 12: FACTORY FARMS

**Objectives: To understand the complex loss of the family farm in the U.S. and the effects on the land, people, and business**

**Materials: Notebooks, pen, internet connection**

**Standard 6.1 U.S. History: America in the World**

In today's complex world there are two main types of farmers: 1) Family Farmers (many of which are organic) and 2) Factory Farmers.

Up through the 1900's, over one-third of Americans were farmers. Today only three percent of Americans consider themselves farmers. There has been a great change in where and how our food is produced. The average American dinner plate of food has traveled 1600 miles to your house. There are many problems with this type of model. There is no transparency (knowing how our food is grown, processed, packaged, and shipped) and no accountability (making sure our food is produced in healthy and humane way). We do not know what practices are going on when the farms are far away.

**Some problems with Factory Farms include:**

Higher use of pesticides which can run-off into the stream and kill all sorts of insects and the animals that depend on insects for food (such as birds and reptiles).

Higher use of fertilizers, which run-off into local streams when it rains, causing an environmental problem called **EUTROPHICATION**.

Factory Farms use a lot more water per acre due to their extensive irrigation systems that spray water very high into the air.

Have the students view The Meatrix I at [www.meatrix.com](http://www.meatrix.com)

[www.mindfully.org](http://www.mindfully.org): is a great resource for topics such as factory farmers, food, water, and pesticides. Have the students write reports based on the information in these websites.

Lesson Plan:

Trace the French Fry: An Introduction to the Food System Game taken from Sara Cobyln's book *French Fries and the Food System: A Year-round Curriculum Connecting Youth with Farming and Food*. \*This manual awaits the written consent of the publisher to copy any of these materials\*

# Trace the French Fry: An Introduction to the Food System

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**GOAL:** To explore how our food is grown, processed and distributed. To compare this approach to alternative models of sustainable food systems, students will construct maps of both models to be used throughout this unit.

**OBJECTIVES:** Students will learn the various steps our food goes through before it arrives on our table. They will also examine the types of impact these different systems have on the environment, people and the economy.

**MATERIALS:**

- Trace the French Fry Quote sheets A (conventional) and B (sustainable) (two sheets). (pp. 154-155)
- Energy Used in Producing Food handout. (p. 162)
- Enough copies for each student.
- An Idaho potato and a potato from your farm or a local farmer (as local as possible)
- Food system map materials:
  - Sustainable: Cards for each role of system—supplier, producer, retailer, CSA member and consumer. Arrows to fit between each. (p. 161)
  - Conventional: Cards for supplier, producer, processor, distributor, retailer and consumer. Arrows to fit between each. (p. 160)
- Food System Structure (pp. 160-161)
- Trace the French Fry background sheets (pp. 156-159)
- Flip-chart, markers and tape to attach cards to maps.

**PREPARATION:** Photocopy the conventional and sustainable maps. Cut out the image and title (Producer) for each sector. Also cut out the arrows. Make one batch of each, one for each team.

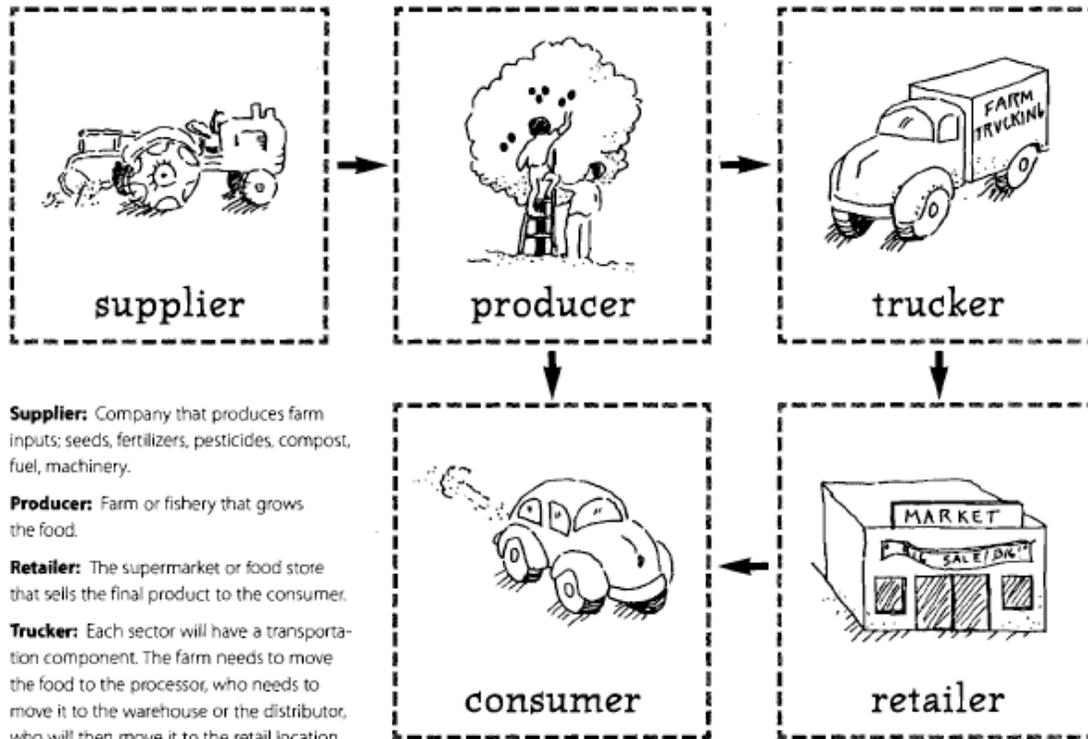
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## PROCEDURE

### PART I Engaging the Question (10 minutes)

1. Hold up the two potatoes and ask, "What are the differences between these two potatoes?" There are several differences here, visible and invisible. Pass the potatoes around. Generate a list to get an idea of what the group thinks.
2. Now provide the group with more information. Tell them where you bought or dug the potatoes and where the potatoes themselves originated. Ask the group to list the other differences now that they have more information. If people throw out words like "organic," ask them to clarify.
3. Finally, tell the group that the potatoes come from two very different food systems. One potato grew locally and represents a more sustainable food system, while the other came from much farther away and represents the global, conventional food system.
4. Next, help the students define the phrase "food system." Ask them to list the parts of their food system, and then help the group finish the definition. (The system that produces, processes, distributes and sells food.) Try defining a "system" first and then ask them to imagine what the "food" system could mean. Or, ask the group to imagine or even draw the path that their breakfast took to get to their table. *What is your cereal made of (grain)? Where in the U.S. was the grain grown for your cornflakes (probably the Midwest)? What happened to the grain after it left the farm (processed into flakes)?* Help them see the general path; there is no need for specifics at this time. (See **Trace Your Breakfast** for further discussion of this method of tracing a food product.)

# LOCAL



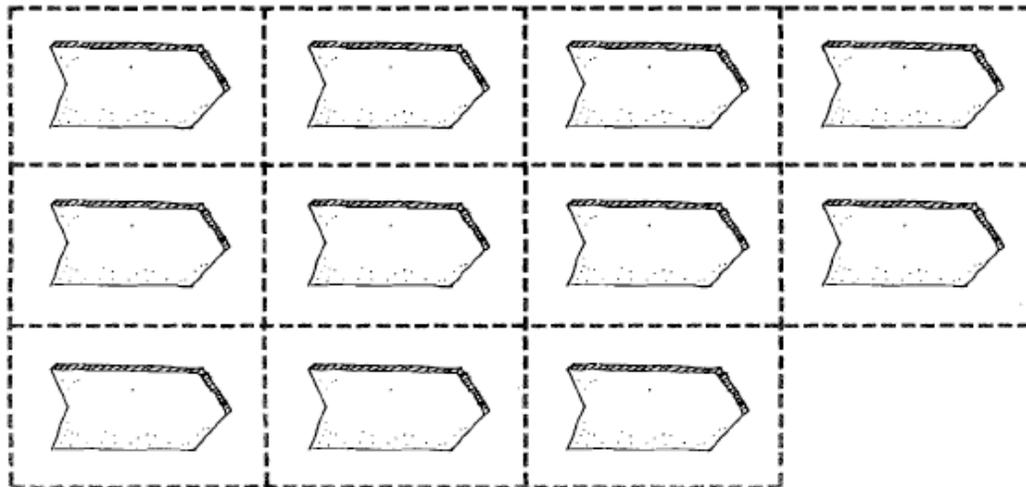
**Supplier:** Company that produces farm inputs; seeds, fertilizers, pesticides, compost, fuel, machinery.

**Producer:** Farm or fishery that grows the food.

**Retailer:** The supermarket or food store that sells the final product to the consumer.

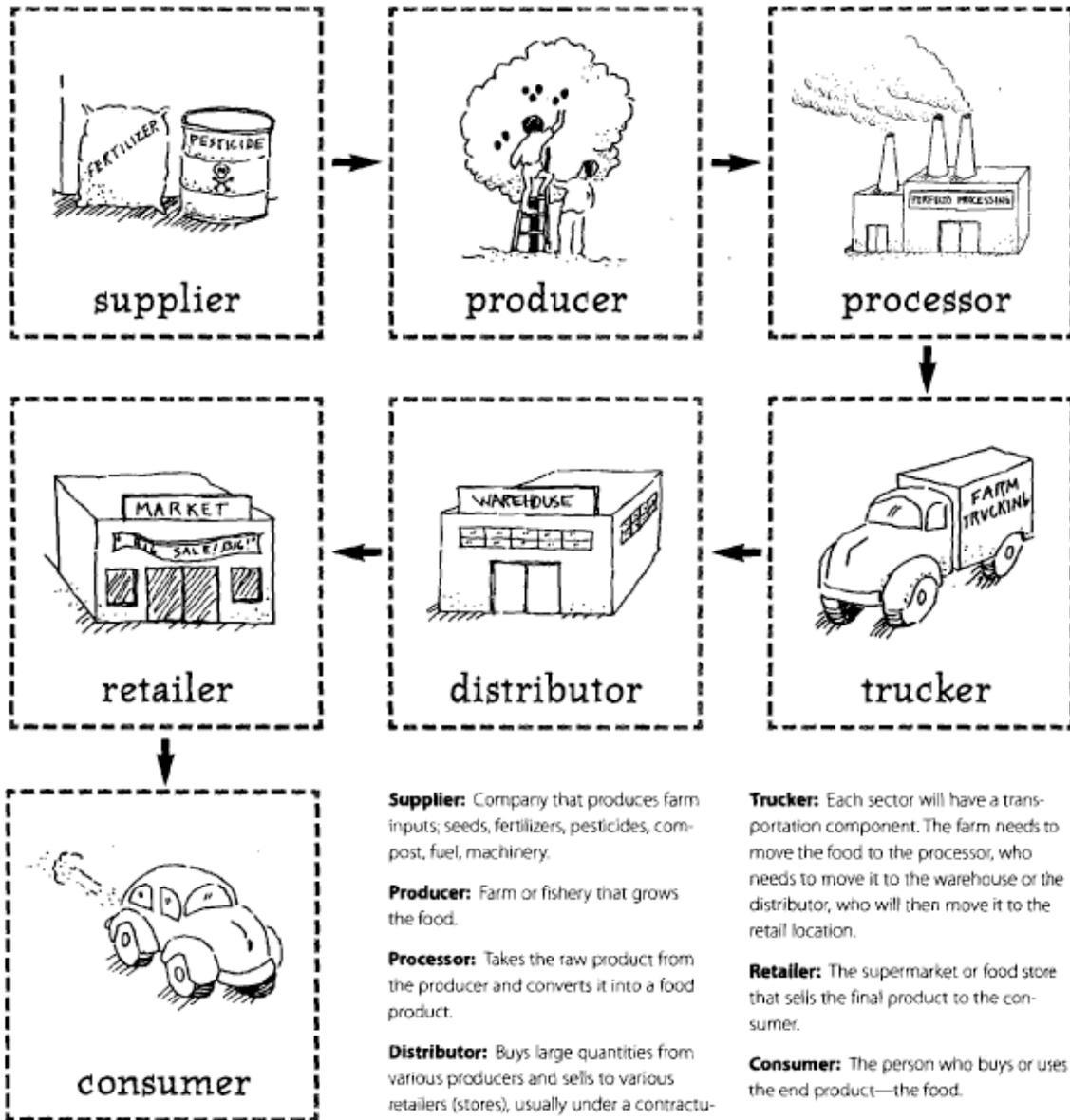
**Trucker:** Each sector will have a transportation component. The farm needs to move the food to the processor, who needs to move it to the warehouse or the distributor, who will then move it to the retail location.

**Consumer:** The person who buys or uses the end product—the food.



Use these arrows to construct the food maps.

## CONVENTIONAL



**Supplier:** Company that produces farm inputs; seeds, fertilizers, pesticides, compost, fuel, machinery.

**Producer:** Farm or fishery that grows the food.

**Processor:** Takes the raw product from the producer and converts it into a food product.

**Distributor:** Buys large quantities from various producers and sells to various retailers (stores), usually under a contractual agreement. May store product in a warehouse.

**Trucker:** Each sector will have a transportation component. The farm needs to move the food to the processor, who needs to move it to the warehouse or the distributor, who will then move it to the retail location.

**Retailer:** The supermarket or food store that sells the final product to the consumer.

**Consumer:** The person who buys or uses the end product—the food.

**PART II Creating the Food System Map  
(25 minutes)**

1. Split the group in half, and hand out the materials for creating the food system map. Hand the sustainable pieces to one group and the conventional to the other, along with the appropriate Trace the French Fry quote sheets.
2. Explain to the two teams that their challenge is to develop a map of their particular food system by matching the quotes and names on the handouts to their role in the food system. For example, the "conventional" team should match Betty Fryface with the role she plays in her food system based mainly on her quote. She discusses buying the Silver Arches' french fries, so her role is the consumer. Students may also be able to link the roles in the food system just by looking at the cards and realizing that the retailer is linked to the consumer by an arrow. A team is done if they have set up all the cards and arrows in the correct order and are ready to paste them to the flip-chart. Circulate and help each team.
3. The first team that is finished can tape their system to the flip-chart. When done, the arrows link all the roles in the food system (producer to consumer). Write the name of the team on their map, which will serve as a reference tool during the unit. Have someone from this team explain their system. Other team members read the name of each food system player and their quote. Tell the other team to listen closely, because they must identify any mistakes. As the team identifies each player, write their name and company next to their respective card.
4. The other team presents its map.
5. Finally, ask the group if it knows which system produced which potato and why.

**PART III Impacts (20 minutes)**

1. Hand out the photocopies of Energy Used in Producing Food. Explain the maps, and give the students a few minutes to read them. *How are these maps different from the one they just created? How are they similar?*
2. Define the term "impact" with the group. Or, for a younger group, choose a simpler word like "influence" or "effect." Draw analogies in their own lives. *How does each student impact his or her family? What kinds of actions have what kinds of impacts?*
3. Now think about impact within these food systems. *What kinds of impact or effect would each of these roles in the food system have on the environment or on the community? Help them to think about the impact in three categories: people, the environment and the economy. What types of impacts occur in each of these areas? To help stimulate this conversation, try to be specific. Ask the group to mentally trace where their breakfast came from this morning (or if you did this exercise earlier, ask them to remember it). Did your food come from far away or close by? What is the impact of trucking our food all over the country? What about the farms that produced the wheat for your bagel? Would they have any impact you might have heard about on the environment or laborers in their fields? Use the Energy Used in Producing Food sheet for this and the background sheet.*

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# Agricultural Systems

## LESSON 13: GLOBAL FOOD POLICY: THE BRETTON WOODS INSTITUTIONS

**Objectives:** To understand the complex economic system of international trade and the effects of multi-national corporations on subsistence farmers in the less developed countries

**Materials:** Notebooks, pen, internet connection

**Standard 6.2 World History/Global Studies**

After World War II, the leaders from the 44 allied nations gathered together in **Bretton Woods**, New Hampshire to discuss how to rebuild the shattered post-war economy and to promote global economic cooperation (globalization).

Two institutions that were formed after these meetings: The World Trade Organization and the International Monetary Fund.

These two institutions give \$25 billion a year to “developing countries” around the world for development projects. Over the past few decades, the Bretton Woods institutions have been accused of causing great devastation to farmers all around the world.

When the Bretton Woods institutions give money to developing countries there are requirements, known as **structural adjustments**, that the countries receiving these loans must follow. But the way things have turned out, the requirements have resulted in poor countries, reducing spending on things such as health, education and development while debt repayment and other economic policies have been made the priority. Some have argued that these requirements have actually lowered the standard of living in these developing countries.

Many economists and ecologists who do not work for the Bretton Woods institutions see that there are other economic alternatives to this model. One example is ensuring that the money goes directly to the people to start small businesses as in the Grameen Bank

([http://www.grameen-info.org/index.php?option=com\\_content&task=blogsection&id=5&Itemid=164](http://www.grameen-info.org/index.php?option=com_content&task=blogsection&id=5&Itemid=164)).

Some structural adjustments that affect the farmers most directly include devaluing the currency, only growing cash crops, and lower the trade barriers.

View and discuss *Life and Debt about Jamaica* <http://www.lifeanddebt.org/>

Case Study Latin American Farmers:

[http://www.panna.org/legacy/gpc/gpc\\_200104.11.1.08.dv.html](http://www.panna.org/legacy/gpc/gpc_200104.11.1.08.dv.html)

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# Agricultural Systems

## LESSON 14: ENVIRONMENTAL JUSTICE IN CAMDEN THROUGH GARDENING

(REPRINTED WITH PERMISSION FROM SCRIBE VIDEO [HTTP://SCRIBE.ORG/ABOUT/PRECIOUSPLACES](http://scribe.org/about/preciousplaces))

**Objectives:** To understand the interconnectivity of topics such as Environment, Environmental Justice, Environmental Racism, Green Space, Health, Land Use, Pollution, Urban Gardening.

**Materials:** Notebooks, pen, DVD player

**Standard 6.1 U.S. History: America in the World, Standard 6.2 World History/Global Studies, Standard 6.3 Active Citizenship in the 21st Century**

**Watch Film Entitled: *Eve's Garden***

DVD, documentary Video, color, 9 min 15 seconds, 2007

Written/Produced/Directed by: Heart of Camden with Scribe Video Center

This study guide for the short film *Eve's Garden* is designed for immediate use in high school classrooms. It contains instructions for classroom implementation, links to student handouts and relevant online resources, and suggestions for cross-curricular extensions. We anticipate that you will adapt the lesson plans to meet your students' needs and your own curricular goals.

### **Subject Matter**

Environment, Environmental Justice, Environmental Racism, Green Space, Health, Land Use, Pollution, Urban Gardening.

### **Film Synopsis**

South Camden may not normally evoke images of verdant foliage and bountiful vegetable gardens. With an assortment of industries, an incinerator, a sewage treatment plant, and toxic areas including two federal Superfund sites, the neighborhood is seriously affected by pollution. Respiratory and other health ailments are widespread, and neighborhood groups have decried the environmental policies that have allowed their community and the air they breathe to become so polluted. Yet, as this documentary shows, Eve's garden is part of a long history of neighborhood activism to make the streets of South Camden healthier and more beautiful. The garden features a large greenhouse, vegetable beds, and even a hand-built cobb baking oven that the children helped construct from local clay, sand and straw. Residents and school children grow corn, pole beans, tomatoes, collard greens, potatoes, squash and numerous other hand-tended delights. Founded in 2004, Eve's Garden and Community Greenhouse give residents the opportunity to have their own lush piece of paradise in the middle of Camden's urban-industrial waterfront. While environmental pollution disproportionately affects communities of color, urban gardens such as Eve's have long-demonstrated that industrial blight does not have the final word on a community's vitality.

### **Lesson Summary**

Industrial pollution can pose significant health risks to many urban neighborhoods, and many industrialized areas are located in or near communities that are low-income or African American or Latino. This lesson examines how an urban garden in Camden, New Jersey provides a sanctuary from pollution and industrial blight.

### **Grade Level**

9 to 12

### **Time Allotment**

45 minutes to 1 and ½ hours. The lesson can be divided into two class periods.

## Learning Objectives

After viewing the film and completing the lesson, students will be able to:

- Understand how social justice concerns such as racism and land use intersect with environmental issues such as pollution and greenspace.
- Examine the environment that they live in and how they interact with it.

## Media Components

TV and DVD player

Prior to teaching this lesson, bookmark all of the Web sites used in the lesson on each computer in your classroom, or upload all links to an online bookmarking utility such as [www.portaportal.com](http://www.portaportal.com). Preview all of the Web sites (listed at the end of this lesson) and video clips to make sure that they are appropriate for your students. Make enough copies of each of the worksheets for the students in your class. Cue the DVD of *Eve's Garden* to the beginning.

## Topics for Class Discussion

1. The Waterfront South Neighborhood in Camden suffers from significant environmental pollution due to its proximity to industries and toxic sites. Numerous studies have shown that nationwide, toxic facilities are most likely to be situated near predominantly African American or Native American communities. Sociologist Robert D. Bullard writes that in the first national study on the issue, *Toxic Waste and Race*, “race was found to be the most potent variable in predicting where these facilities were located—more powerful than poverty, land values, and home ownership.” Although the documentary does not explicitly link racial demographics and pollution, why might a toxic industry be more likely—or more able—to be established in a largely African American community such as Waterfront South?
2. *Eve's Garden* begins with shots of the Waterfront South neighborhood, many of which show abandoned buildings and trash. A narrator explains that the garden is actually named after a sex worker/prostitute who was working in the area, and that toxic pollution is a serious health concern for the community. How does pollution in the Waterfront South neighborhood compare to with other challenges faced by urban communities?
3. Although the viewer does not learn very much about Eve, why might it be significant that the garden is named after her?

4. The natural environment is vitally important to human well being. Ecosystems such as the Amazon Rainforest play a well-documented role in supporting humans by producing oxygen for us to breathe. One of the contributions of the environmental justice movement, has been to urge people to reexamine their ideas about what Planet Earth's "living environment" is. What is "the environment" to you?
  - a.) Why might the health of the urban environment also be important to human well being?
  - b.) Do you think that keeping the urban environment clean and healthy should be as high a priority for society as saving wilderness environments?
  - c.) Why might policy makers pay less attention, as has been the case historically, to the environmental condition of a community with economic and racial demographics such as those in Waterfront South?
5. Eve's Garden depicts the garden as a green, natural oasis in the midst of the city. Why would growing vegetables and flowers be a beneficial—even therapeutic—activity for residents of a community affected by economic hardship and environmental pollution?
  - a.) What are the specific ways that community gardening might positively affect a neighborhood?
6. The cost of fresh, healthy fruits and vegetables has been shown to be substantially higher in low-income, inner-city communities. Why might this be true?
  - a.) How do disproportionately high food costs compare to the costs of other services in neighborhoods like Camden's Waterfront South?

### Homework Assignments

1. Communities across the nation and the world have mobilized to oppose environmental injustice and racism. Ask your students to report on a specific case, such as one of those examined in *The Environmental Justice Reader: Politics, Poetics, and Pedagogy*. Urge them to discuss any apparent similarities or differences between their research case and Camden.
2. According to [www.scorecard.org](http://www.scorecard.org), 9438 pounds of "recognized carcinogens" were emitted into the air in Camden County, New Jersey, in 2002. Ask your students to research and report on the industries located around Camden. Ask them to research and discuss which industries may emit toxic pollutants.

3. Urban community gardening is low-cost, easy to implement, and fun for community members. Ask students to design a proposal for a community garden in their neighborhood. The proposal can include ways in which the garden project will benefit the community, how the space would be divided up among neighbors, and which vegetables, fruits and flowers they would want to grow.

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# Garden Curriculum

## LESSON 15: POTATO SEED-TO-TABLE

**Objectives:** To understand the entire process of growing potatoes and cooking them

**Materials:** DVD player

**Standard 6.3 Active Citizenship in the 21st Century, Standard 5.3**

*Please see* **FILM SUMMARIES** for detailed information about the film. Each year the Center For Transformation will produce an additional film following a different vegetable from seed-to-table.

Develop a quiz based on the information from the film.

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# Garden Curriculum

## LESSON 16: UTILIZING THE SOIL TESTING KIT

**Objectives:** To test the soil in an area that the class has determined to be a good location for a garden

**Materials:** soil testing kits

Standard 6.3 Active Citizenship in the 21st Century, Science standard 5.4

It is of utmost importance to test your soil for contamination. There is contaminated land all around Camden. The most contaminated land is called superfund sites or brownfields. **DO NOT** grow on land that you have not tested. The toxins in the soil will come up through the plants that you are growing and eating.

Fifty soil-testing kits will be made available on a first come basis. These kits test for pH and general fertility as well as lead contamination. Lead in the soil may be a result of paint chips or from when gasoline contained lead. If your soil is polluted do **NOT** grow vegetables. Additionally, a limited number of arsenic tests will also be made available for testing. These were not included in the kit to be certain they would not be wasted. Please e-mail [aferrich@gmail.com](mailto:aferrich@gmail.com) for your kits. Also, please post on [www.healthycamden.blogspot.com](http://www.healthycamden.blogspot.com) *Visit* <http://njaes.rutgers.edu/soiltestinglab/homegarden-instructions.pdf> *for complete instructions on soil testing.*

### ***Planning***

Use a trowel or spade to obtain thin vertical slices of soil, or a soil tube or auger to obtain cores, from the surface to a depth of 6-7". If using a trowel or spade, dig a hole to a depth

of 6-7", setting the soil aside. Then take a thin slice of soil from the face of the hole. From the center of this slice, cut a 1" wide subsample from top to bottom.

Place the subsample in a clean plastic bucket.

Repeat this procedure at 10-15 locations within the sampling area, placing all subsamples together in the container. (Exception: in areas smaller than 100 square feet, 5-10 subsamples will be adequate).

Mix all the soil in the container, breaking up subsamples and any large clods. The goal is to provide an average soil sample, representative of the area. If the soil is wet, allow it to air-dry by spreading it out on clean paper or plastic. **Do not heat** the soil. Dry samples reduce processing time as well as mailing costs.

Place 1 pint (2 cups) of soil in a plastic bag (sandwich-size), press out excess air, and seal carefully. Mark the bag with the sample ID using permanent ink. Double bagging is encouraged to prevent breakage/spill. Excess soil can be returned to the sampling holes.

**Sample separately the areas used for different types of plants.** For example, keep samples taken from lawn areas separate from samples taken from flower and shrub areas. Samples from areas with rhododendron, azalea, and other acid-loving plants should be kept separate from samples taken from areas with other types of shrubs. In other words, *most samples should represent only one type of planting*. If more than three types of plantings are selected, the sample probably represents none of them well.

Also sample separately areas that have received different lime and/or fertilizer treatments in the past.

Do not sample areas that have been limed or fertilized within the past 6 weeks unless trouble is evident.

Where poor growth exists, separate samples should be taken from both good and bad areas, if possible.

To obtain a representative sample, plan to collect multiple subsamples at random locations within each area.

Each sample must be submitted with a corresponding soil test questionnaire.

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# Garden Curriculum

## LESSON 17: PLANTING GUIDE

**Objectives:** To develop a planting guide that is most suitable for your garden needs

**Materials:** Internet and *Square Foot Gardening*, poster board

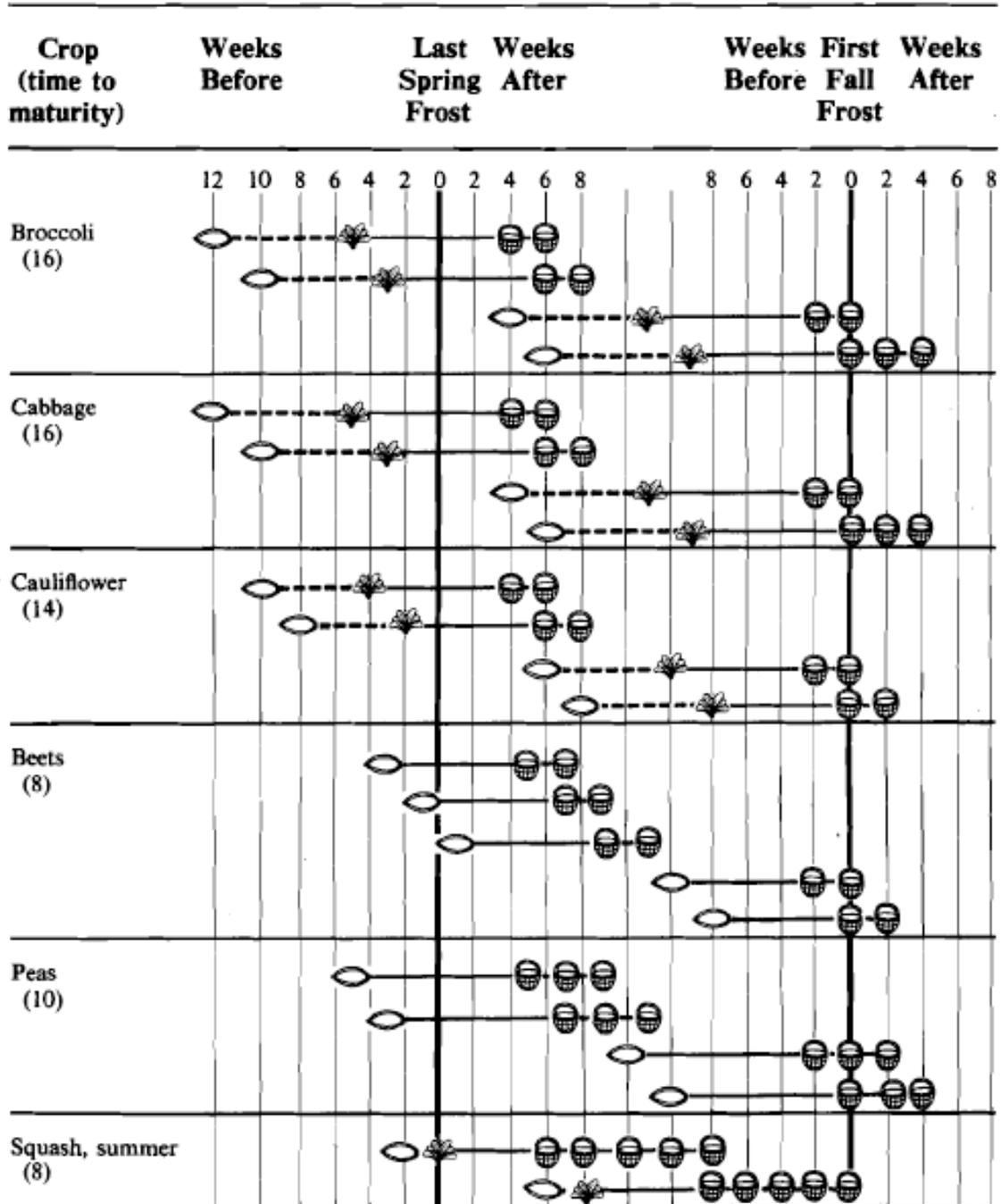
### Science standard 5.1

Planting guides are one of the most important resources for maintaining a productive garden. A planting guide tells you what to plant and how often to plant it. The guides inside the book *Square Foot Gardening* are definitely some of the best. The tables in Bartholomew's book illustrate a continuous harvest, and include proper planting scale to make sure you grow the proper amount and great methods for teaching **proper plant spacing**. If you do not purchase this book there are sources all over the internet of planting guides such as [http://www.victoryseeds.com/information/planting\\_guide.html](http://www.victoryseeds.com/information/planting_guide.html) from Victory Seeds. Have the students work in small groups to create tables similar to the one below. They can start by flipping through seed catalogues and making a list of everything they want to grow. Do not forget that we live in climatic zone 6B.

Table 2

(Barthomew,97)

**PLANTING SCHEDULE FOR A CONTINUOUS HARVEST**



These charts are easier to organize if the plants are divided by botanical family first. One of the best references for botanical family is *Seed to Seed*.

Once the students have organized their plants by botanical family it will be much easier to learn and explain concepts such as **companion planting** and **crop rotation**.

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# Garden Curriculum

## LESSON 18: COMPANION PLANTING GUIDE

**Objectives:** To continue to compile a companion planting guide for your garden

**Materials:** INTERNET AND POSTERS

### SCIENCE standard 5.1

Companion planting techniques teach that certain plants help other plants grow well if they are planted together. Take for example if you plant radish seeds and carrot seeds in the same hole, the radish seeds will germinate and grow much quicker. When the radishes are harvested they create room for the carrots to grow very large. Another example can be seen in the members of the brassica family (cabbage, kale, broccoli, collard greens, etc.) can be planted with aromatic herbs because the scent of the herb disguises the scent of the brassica from the cabbage moth.

**Table 3. COMPANION PLANTING CHART FOR HOME & MARKET GARDENING** (compiled from traditional literature on companion planting)

CROP	COMPANIONS	INCOMPATIBLE
Asparagus	Tomato, Parsley, Basil	
Beans	Most Vegetables & Herbs	
Beans, Bush	Irish Potato, Cucumber, Corn, Strawberry, Celery, Summer Savory	Onion
Beans, Pole	Corn, Summer Savory, Radish	Onion, Beets, Kohlrabi, Sunflower
Cabbage Family	Aromatic Herbs, Celery, Beets, Onion Family, Chamomile, Spinach, Chard	Dill, Strawberries, Pole Beans, Tomato

Carrots	English Pea, Lettuce, Rosemary, Onion Family, Sage, Tomato	Dill
Celery	Onion & Cabbage Families, Tomato, Bush Beans, Nasturtium	
Corn	Irish Potato, Beans, English Pea, Pumpkin, Cucumber, Squash	Tomato
Cucumber	Beans, Corn, English Pea, Sunflowers, Radish	Irish Potato, Aromatic Herbs
Eggplant	Beans, Marigold	
Lettuce	Carrot, Radish, Strawberry, Cucumber	
Onion Family	Beets, Carrot, Lettuce, Cabbage Family, Summer Savory	Beans, English Peas
Parsley	Tomato, Asparagus	
Pea, English	Carrots, Radish, Turnip, Cucumber, Corn, Beans	Onion Family, Gladiolus, Irish Potato
Potato, Irish	Beans, Corn, Cabbage Family, Marigolds, Horseradish	Pumpkin, Squash, Tomato, Cucumber, Sunflower
Pumpkins	Corn, Marigold	Irish Potato
Radish	English Pea, Nasturtium, Lettuce, Cucumber	Hyssop
Spinach	Strawberry, Fava Bean	
Squash	Nasturtium, Corn, Marigold	Irish Potato
Tomato	Onion Family, Nasturtium, Marigold, Asparagus, Carrot, Parsley, Cucumber	Irish Potato, Fennel, Cabbage Family
Turnip	English Pea	Irish Potato

<http://attra.ncat.org/attra-pub/complant.html#chart>

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# Garden Curriculum

## LESSON 19: CROP ROTATION

**Objectives:** To study and plan crop rotations practices for a healthy garden

**Materials:** INTERNET AND POSTERS

## Science standard 5.1

Crop rotation is a great method of helping to control the pests in your garden as well as keeping your soil healthy. The basic principle in crop rotation is that if you keep planting the same vegetable in the same bed year after year then the pests that most frequently attack it will pervade in that soil. Let's say you plant tomatoes in the same bed year after year. Tomatoes (as well as any other vegetable) require certain minerals to grow well. When they grow they take those certain minerals out of the soil needed for the plant to grow. If you plant tomatoes in the same bed, that soil will needed have the necessary minerals. I like to use organic fertilizers every year on the soil. Generally at the Center For Transformation we use Seaweed Emulsions from Neptune's Harvest. <http://www.neptunesharvest.com/>

Have the students write all of the plants that they want to grow and handout a copy of the garden map. If you do not have a garden map, have the students measure it the area and create a scale map calculating angles, distance, and area. Ask the students to organize the plants they want to grow according to family. Label the first map Year 1 and the second map Year 2. Ask the students to create a possible design for their garden beds based on crop rotation practices that plant members of different plant families from one season to the next. This method of planting is practicing poly-culture or growing different varieties in the same bed, as compared to mono-culture practiced by most industrial farms that mostly grow only one type of plant (i.e. corn).

<http://www.blisstree.com/articles/crop-rotation-for-small-gardens/>

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# Garden Curriculum

## LESSON 20: SPIN METHOD

**Objectives:** To become familiar with the SPIN method

**Materials:** Internet

### Science standard 5.1

The SPIN method stands for Small Plot Intensive gardening. It was made famous in our region at Somerton Tanks farm in Philadelphia through focusing on productivity and soil fertility. These farmers made \$68,000 gross profit in vegetable production on half an acre in one year. The best part about this model is that it improves the soil year after year. Many of these practices of SPIN farming are included in this handbook. Feel free to explore more at:

<http://www.spinfarming.com/whatsSpin/>

Have the students write a business plan researching different prices for market rate produce. Also have the students explore the South Jersey Green Dining Association <http://www.sjgreendining.com/> to find local restaurants in South Jersey that are looking to purchase locally grown produce.

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# Additional Camden Resources

## LESSON 21: MASTER GARDENERS

**Objectives:** To become familiar with the Camden Master Gardeners Program

**Materials:** Internet Connection

The Master Gardeners program is a program that is offered in Camden County through the Rutgers Cooperative Extension. This program is a valuable resource to you. They offer a free gardening helpline Monday-Friday from 9 AM- Noon at (856) 566-2900 or at [njgarden@co.camden.nj.us](mailto:njgarden@co.camden.nj.us) The Master Gardeners of Camden County is offering scholarships to residents of Camden to attend the Master Gardeners Program. An application is included in your toolkit.

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## LESSON 22: CAMDEN CITY GARDEN CLUB

[HTTP://WWW.CAMDENCHILDRENSGARDEN.ORG/](http://www.camdenchildrensgarden.org/)

**The Camden City Garden Club** is a non-profit (501) (c) (3), membership-based, educational and environmental organization established in 1985 to assist Camden City residents with community gardening. Over the years the Club has evolved to include many additional programs: Community Gardening and Greening, Grow Lab, the Community Youth Employment Program and the Camden Children's Garden.

Established in 1985, our Community Gardening Program helps residents of the City of Camden and members of the Garden Club maintain community garden and greening sites throughout the City of Camden. The Camden City Garden Club (CCGC) assists members with cleaning vacant, city-owned lots and transforming them into beautiful and productive community gardens, growing fresh and nutritious fruits and vegetables.

The Club provides tools, plants and seeds, while members provide the sweat equity. Members receive

planting and gardening information and can participate in demonstrations, and periodic workshops. The Club also assists members and Camden residents with community greening projects and planting trees throughout the neighborhoods of Camden.

### Community Gardening

The Camden City Garden Club, Inc. has operated a Community Gardening Program since 1985 with support from the William Penn Foundation. Camden residents can garden on vacant, city-owned lots, upon approval from the City of Camden. The Club can assist with providing fencing, lime, fertilizer, seeds, and plants.

Plants are distributed during the Club meetings at the Camden Children's Garden. Early crop plants are available in April and May; warm-season crops are available in June. You must be a member to obtain these supplies.

The organization applies for grants to operate this program and is occasionally able to offer additional materials, such as tools.

### Community Greening

The Camden City Garden Club, Inc. will assist Camden residents with their community greening projects. Residents who are also Club members can request assistance with tree plantings, soil and soil amendments.

### Faith-Based Community Gardening Program

The Faith-Based Community Gardening program is the Club's newest project. Beginning in December 2008, the Camden City Garden Club, Inc. and the Woodland Ave. Presbyterian Church partnered to help prevent childhood obesity, initiated with a grant from the Robert Wood Johnson Foundation through community gardening.

This program teaches Camden residents how to grow their own vegetables and fruit, so they can provide their families with healthy, nutritious produce. Our focus is to help teach residents how to start, maintain and harvest community vegetable gardens. Throughout the year the Club will also host workshops to teach these gardeners how to cook the produce they grow, preparing healthy, tasty dishes the whole family can enjoy together.

This program is designed to work in cooperation with faith-based groups in the City of Camden. If you or your Camden congregation is interested in this program, please call the Community Garden Organizer at 856-365-8733.

### How Can I Become a Member?

Joining is easy. If you are interested in becoming a member, please contact the Club's office and ask for an application to be mailed to you along with an application to garden on City owned lots. You may also download the Community Gardening brochures on this page to fill out the application form and mail it to the Camden City Garden Club, Inc.

Camden City Garden Club, Inc.

3 Riverside Drive  
Camden, NJ 08733

### Grow Lab

Grow-lab teaches elementary school children science and math skills through horticulture. The lab is a mini-indoor greenhouse developed by the National Gardening Association. An important part of the program is a K-8th grade curriculum and activities guide developed by the National Science Foundation. This curriculum closely resembles the New Jersey Core Curriculum Standards for science in grades 1-4. The Grow-Lab program serves thousands of school children per year in the City of Camden.

The Camden City Garden Club staff provides assistance to Grow-Lab teachers through periodic classroom visitations and teacher workshops. One of the favorite activities is the salad party. Students grow the salad ingredients and plan the party.

The Camden City Garden Club enhanced its Grow Lab program in 2005 by adding two new and important components: nutrition education and ecological concepts. Our nutrition lessons focus on making better food choices and the revised food pyramid. Our ecology lessons examine soil, water and air pollution and habitat loss from the perspective: What can I do about it?

The Grow Lab program is funded through grants and donations. If you would like to learn more about this program, please contact our development coordinator at 856.365.8733.

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## LESSON 23: THE CENTER FOR TRANSFORMATION (WE MADE THIS BOOK)

### **Eve's Garden Greenhouse**

**412 Jasper Street (4<sup>th</sup> & Jasper)**

--Plant your own seeds: Come with your class of students or with your neighbor. The CFT offers free seeds for planting and space for growing in our greenhouse. E-mail [aferich@gmail.com](mailto:aferich@gmail.com) to schedule a visit

-Sustainable Development: The CFT employs youth from Camden who are supported through the marketing of heirloom seedlings, rainbarrels, and landscaping.

-Seed-to-table curriculum: The CFT continues to teach the youth of Camden in a curriculum makes vegetables more familiar to the population of Camden from seed-to-table. The residents of Camden decide what is to be grown in Camden through interviews, surveys, and years of relationship building.

-Environmental Justice Education/Tours/Retreats: Come and visit the CFT and stay in our retreat house. Come and have a transformation of your mind as you learn and visit the geography of Environmental Injustice in Camden. Help to transform the neighborhood through the work of your hands in the garden and greenhouse.

--Heirlooms and seed saving: Each year the CFT grows approximately 10,000 heirloom seedlings. These heirlooms are unique because they can be saved. Come and study the art and science of seed saving.

--Rainwater catchment systems: Purchase your rainbarrel for your garden from us or come and visit our bicycle powered rainwater catchment system.

--Native plants and Raingardens: Each year the CFT propagates hundreds of native plants and plants for your raingarden.

Please contact Andrea Ferich for more details:

(856) 283-1338

aferich@gmail.com

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## LESSON 24: SOUTH JERSEY ENVIRONMENTAL JUSTICE ALLIANCE

<http://www.sjenvironmentaljustice.org/about.htm>

“Working for Clean water, fresh air, and an equitable, sustainable, and healthy environment for all people”

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# Additional Camden Resources

## LESSON 25: RUTGERS COOPERATIVE EXTENSION

waddell@njaes.rutgers.edu

Expanded Food and Nutrition Education Program (EFNEP)

The CSREES' [Expanded Food and Nutrition Education Program \(EFNEP\)](#) is a unique program that currently operates in all 50 states and in American Samoa, Guam, Micronesia, Northern Marianas, Puerto Rico, and the Virgin Islands. It is designed to assist limited-resource audiences in acquiring the knowledge, skills, attitudes, and changed behavior necessary for nutritionally sound diets, and to contribute to their personal development and the improvement of the total family diet and nutritional well-being.

### Adult EFNEP:

Through an experiential learning process, adult program participants learn how to make food choices which can improve the nutritional quality of the meals they serve their families. They increase their ability to select and buy food that meets the nutritional needs of their family. They gain new skills in food production, preparation, storage, safety and sanitation, and they learn to better manage their food budgets and related resources from federal, state, and local food assistance agencies and organizations. They also may learn about related topics such as physical activity and health. EFNEP is delivered as a series of lessons, often over several months, by paraprofessionals (peer educators) and volunteers, many of whom are indigenous to the target population. The hands-on, learn-by-doing approach allows the participants to gain the practical skills necessary to make positive behavior changes. Through EFNEP, participants also experience increased self-worth, recognizing that they have something to offer their families and society.

### Youth EFNEP:

The delivery of EFNEP youth programs takes on various forms. EFNEP provides nutrition education at schools as an enrichment of the curriculum, in after-school care programs and through 4-H EFNEP clubs, day camps, residential camps, community centers, neighborhood groups, and home gardening workshops. In addition to lessons on nutrition, food preparation,

and food safety, youth topics may also include related topics, including physical activity and health.

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# Additional Camden Resources

## LESSON 26: AREA HEALTH EDUCATION CENTER (AHEC)

A Community Call For Farmers Markets

Twelve years ago Camden AHEC responded to a community call for a farmers market, given the limited access to fresh produce in Camden. Camden AHEC now manages four farmers markets located throughout the city, including one at Virtua Camden and a second at Lourdes Health System.

The markets not only provide Jersey grown produce but also cooking demonstrations, nutrition consultations, and health screenings and health promotion

The market season is mid-June to late October.

Contact [marshall\\_e@camden-ahec.org](mailto:marshall_e@camden-ahec.org) for more details and to schedule a visit.

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# Additional Camden Resources

## LESSON 27: ADDITIONAL CAMDEN RESOURCES

# Camden Citywide Diabetes

## Collaborative

If you live in the city of Camden you can receive free education help managing your diabetes. Spanish speaking programs available. Referral through medical doctors.

## Respond

### Culinary Arts and Catering Training

**New Worker Job Development Center** 924-925 N. Eighth Street (at Erie) Camden, NJ 08102 Focus:

- Demand occupations and employment projections from the New Jersey Department of Labor and Workforce Development
- Occupational training with sound curriculum and core competencies
- Targeting at-risk populations (youth and adults)
- Collaborative partnership model for sustainability
- Areas of Interest Include:
  - Culinary Arts and Catering
  - Automotive Technology
  - CDA Training/On-Site Child Development Classrooms & Rooftop Playground
  - Housing Restoration & Carpentry
  - Youth Development
  - Literacy and Computer Skills
  - Entrepreneurial Ventures

**For information about current and upcoming classes and training opportunities, please contact: Respond Inc. Judith Everts, Director of Adult Services 532 State Street, Camden, NJ 08102 856-365-4400**

# Cathedral Kitchen Culinary Training

## Culinary Arts Training (CAT) Program

In February of 2009, Cathedral Kitchen launched its first job training initiative—the Culinary Arts Training (CAT) program. Our CAT program targets Camden residents who are unemployed, unskilled, homeless and/or at risk of homelessness. There are no tuition costs to enrolled students, and textbooks, study materials, chef uniforms and shoes are provided by CK. CAT students are recruited from Volunteers of America residential facilities (including halfway houses), the local veterans' shelter, Camden County's One Stop Career Center, referrals from other Camden nonprofits, as well as our dinner guest population. The CAT program is scheduled to operate twice per year. (856) 964-6771

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## Ecological Lessons

### LESSON 28:

### BIOENGINEERING/HEIRLOOMS

**Objectives:** To become familiar with the concept of GMOs vs. Heirlooms

#### **Science standard 5.3**

Watch the Film Food INC. or the film FRESH

The commonly used acronym, GMO (genetically modified organisms) describes a type of seed that the majority of industrial farms grow. GMO's are banned for commercial use in Europe, because not enough is known about the effects of these seeds.

Beginning in the mid-1980's seed international seed corporations such as Monsanto began to purchase the rights to the genetic codes of seeds, making it illegal for farmers to save their own seeds, a tradition that farmers have been practicing for thousands of years.

Monsanto is also the world's leading producer of herbicides and pesticides. Monsanto sells 90%

of the world's genetically engineered seeds. Since the 1980s, American agriculture has become increasingly concentrated. Today, less than two percent of farms account for half of all agricultural sales. The new antitrust division of President Obama's Justice Department has said that scrutinizing monopolies in agriculture is a top priority.

That shift is giving hope to independent farmers, who have complained for years that agriculture giants are shrinking the marketplace and paying farmers less for their products.

Heirlooms seeds are varieties that have never been genetically engineered. These are seeds that can be saved. To be classified as an heirloom one of these varieties must have been around prior to 1950. Heirlooms are known for how amazing they taste, and they are usually more expensive to buy at the store. They are the taste of HOMETOWN.

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# Ecological Lessons

## LESSON 29: STORMWATER RUNOFF

**Objectives:** To study storm water run-off

**Materials:** water gauge

### Science standard 5.3

Storm water run-off is one of the largest health risks in the City of Camden. In old cities like Camden there are combined sewage and storm-water drains. When it rains very hard there is too much sewage for the treatment plant to process and the pipes get backed up and may come into the house in Camden. Storm water run-off is created when it rains quite hard and the non-pervious surfaces do not allow the water to seep back into the ground and the water table.

Andy Kricun the Chief Engineer from the Camden County Municipal Utilities Authority (CCMUA sewage treatment plant) says:

*The Camden County MUA's sewage treatment plant receives flow from Camden City and Camden County's 36 suburban communities. Camden City's sewer*

*system is combined (storm water and sanitary systems combined). In addition, many of the 36 suburban communities have leaky sewer systems. As a result, rainwater and groundwater leaks into these sewer systems.*

*Consequently, the flow to the sewage treatment plant increases significantly during rain events. This results in an exceedence of the plant's sewage treatment capacity and can correspondingly result in a backup of the treatment plant. This, in turn, can cause (1) flooding of Camden City's streets, (2) backups of raw sewage into residential homes and/or (3) overflows of sewage into the Delaware River.*

*Therefore, any reduction of storm water into the sewer system would correspondingly reduce the probability of flooding, sewage backups and/or sewage overflows. For this reason, the implementation of rain gardens and rainwater catchment systems around Camden County would have a significant benefit on public health and the water quality of the Delaware River.*

Have the students monitor the amount of rainfall that comes into their outdoor area. Hook-up rainbarrels and keep written records of the amount of water that you collect. Also calculate the total area of your garden and calculate the volume of water that will fall on your garden after every storm. Watch the Rainbarrel film in the enclosed DVD to inspire conversation about storm-water run-off. PLEASE VISIT THE "RAINGARDEN SECTION" OF [WWW.HEALTHYCAMDEN.BLOGSPOT.COM](http://WWW.HEALTHYCAMDEN.BLOGSPOT.COM) FOR MORE DETAILS ABOUT RAINGARDENS OR CONTACT [SJWATERSHEDS@VERIZON.NET](mailto:SJWATERSHEDS@VERIZON.NET) FOR MORE DETAILS ON PLANTING YOUR OWN RAINGARDEN.



# GARDEN CALENDAR

[www.camdencenterfortransformation.org](http://www.camdencenterfortransformation.org)

-- this is a work in progress, expands every year, would like to include more culturally diverse holidays, and more of the planting/harvest schedule, modern Environmental Saints- Vandana Shiva, Judy Wicks, Leopold, Muir, Thoreau, and days of remembering TMI, Chernobyl,

--

Dec/January- Look at seed Catalogs/design garden

January--Order seeds

January--seed selection, garden plot designing, community outreach, research recipes, bird watching

Feb- 1 Celtic Spring, Candlemass-- distribute florescent bulbs

February-- prune back roses. Call Berlin Agway to tell them you are planning on buying your potatoes from them-- 856-768-6480

Feb. 14-- Sacred Heart Peace Community Gathering Sunday

Feb. 15-- plant members of brassica family in greenhouse

Feb. 28-- Plant herbs in greenhouse

March 7-- Plant members of solanacea family in greenhouse

March 11-- Potatoes come in Wednesday starting in March when all danger of frost has passed

March 13-- (St. Julian of Norwich Day) Approximate day the earth has thawed turn the soil for the potatoes

March 17-- St. Patrick's Day Potato Planting

March 21-- First Day of Spring

March 25-- (Feast of the Annunciation)-Plant your marigolds inside

April 5 (or first day of baseball) -- plant peas outside

April 15 --plant spinach outside

April 18-- plant lettuce outside

April 22--Begin transplanting brassicas outside

April 22-- EARTH DAY!!! Center For Transformation Earth Day Festival

[www.camdencenterfortransformation.org](http://www.camdencenterfortransformation.org)

May 1st- May Day- Bake a cake, plant your beans

May 5th--Cinco de Mayo: Plant corn & Popcorn, plant some sunflower seeds

May 15--Anticipated Last Day of Frost. Everything can go outside!-- (St. Isadore The Farmer Day last frost ranges from Mother's Day to St. Isadore's Day)

Transplant solanacaes, all herbs, cucurbits

May-- Ladybug Release Party-- order ladybugs, praying mantises, monarchs to grow and release

Rotate plant carrots and beans every other week for a continuous harvest.

2nd weekend in May Cape May Bird Watching World Series

May 21-- Stake tomatoes,  
strawberries are ready

June 3-- Mulberries ready

June 14-- Harvest Winter Rye (planted from winter cover crop)

June 21-- First Day of Summer-- Irises and daylilies are blooming

June 22-- first potatoes should be ready

June 29th- (St. Peter's Day) Fish Fry

July 4- Corn should be knee high by the 4th of July

July 14th-- (Kateri Tekakawitha Day)-- native Blueberries are ready

August 1-(Llamas mass)-- Thresh Winter Rye

Start Fall brassicas

August 8th-- Sunflowers and seed saving, Remembering Hiroshima. Tomatoes are ready! Peppers! Eggplant! Squash!

August 14-- Marigold Festival

Cosmic Christ-- Harvest Local Peaches, pesto making, tomato sauce, salsa

September 14-- Holy Cross Sunday-- Tomato Feast Day

Sept. 17 Hildegard of Bingen

September 21 —First Day of Autumn

October. 4 --- Thomas Berry Lecture Series St. Francis Day

Columbus Day (Indigenous People's Day) Plant Garlic

Plant bulbs from Columbus Day- Thanksgiving---closer to Thanksgiving if you have deer

Last Tomatoes Day

Transplant Brassicas outside

Fall- dig and divide-- dig up your perennials, divide them and share them

Popcorn has dried Festival-- Tom Thumb Popcorn ready for popping

Seed Saving

Community Food Assessment

Rainbarrel Production

Mary and Joseph's pilgrimage

Dec. 8th --- SEED CATALOGUES start coming in: Baker Creek, Vermont Bean, Territorial, Seed Savers Exchange

\*additionally: \*Camden's Children Garden also has an amazing calendar of events:

<http://www.camdenchildrensgarden.org/events.html>

# FILM SUMMARIES

## Potato: Seed-to-Table

Berlin Agway sells potato seeds. – call in your orders in March: 856-768-6400. Agway usually has 3 varieties of potatoes: Pontiac red, Yukon gold, and Butte White. Onions “sets” (bulbs) can be ordered at this time as well. Potatoes are shipped on Wednesdays in March, when the danger of hard frosts has passed.

These potatoes are called “potato seed.” They are potatoes that somebody had harvested that have gone through a special treatment so they will not spread mold, fungus or other diseases. Look for potato seed that has many “eyes.” The roots will grow out of the eyes.

Cut the potato seed into “splits.” Each split should have two or three eyes. Each of these cut pieces will be planted about seven inches deep in the ground about nine inches apart from each other. Each cut piece will grow into one potato plant. One potato seed produces four or five potato plants (in three months).

Plant potatoes as early as St. Patrick’s Day. You should rotate your crops: be sure to plant the potatoes in a bed where there were no potatoes the previous year (or any members of the same family- solanaceae: this includes any peppers, tomatoes, and eggplant).

Remove all weeds. Leave the beneficial and edible weeds growing beside the potato. Beneficial weeds include members of the legume family such as clover, hairy vetch (they fix nitrogen) and aromatic herbs such as cilantro and chamomile (can help disguise plant scents from pests). Edible weeds include purslane (***Portulaca oleracea***) and lemon clover. Puslane includes more omega-3 than any other leafy plant, and is considered a delicacy in Mexico and England.

Invite all your neighbors and friends to come and help you celebrate your own St. Patrick’s Day Potato Planting Party! It’s a great way to kick off the garden year.

Plant your onion sets a few days later. They will also be ready about three months after planting.

Some flowers and vegetables will have reseeded themselves from last year. This means that the seeds from the plant had survived the winter (over-wintered) and the seedlings emerged in the spring.

**True Leaves** are the second set of leaves on a dichot plant. Traditionally, the flowering plants have been divided into two major groups, or classes: the Dicots (Magnoliopsida) and the **Monocots** (Liliopsida)). True leaves are the actually first set of leaves.

Water your plants once a day, or install drip tape irrigation to ensure a more efficient steady flow of water.

Check for pests primarily on the underside of the leaves. The most common pests are the Colorado potato beetle and aphids. Laying a thick mulch around the plants and sweeping the beetles off the plants can control Colorado potato beetles. Aphids are best controlled through releasing ladybugs. Aphids can be green, black, brown, or pink.

Potato Flower: About two months after planting the potato plants will develop flowers. Even though these flowers are pretty you should pop them off because they are taking necessary nutrients away from the developing potato underground.

Potatoes should be harvested when the plant above the ground turns yellow and falls over.

Harvest the onions when they look like they are ready to pop out of the ground with a full bulb.

**Cutting techniques:** The two methods of cutting are called “the claw” and “the bridge.”

## **COMMUNITY FOOD ASSESSMENT VIDEO**

Conducting Community Food Assessment

Visit [www.healtyhcamden.blogspot.com](http://www.healtyhcamden.blogspot.com) from the links section click on “Camden Food Assessment” (<http://camdenfoodassessment.blogspot.com/>). At the bottom of this webpage is the most current Camden community food assessment, done in 2005. The map is linked on the side. Have the youth familiarize themselves with the list at the bottom of the page. Different types of scientists and college students collected the map and the list. Emphasize to the youth that they are the experts of this community food assessment, and they have **a lot** to bring to this assessment.

Have the youth write down a list of all the locations where they (or their family members) buy food. The youth should interview their family members, and visit their local neighborhood corner stores to write down **all ADDRESSES**. Look at the data at the bottom of the community food assessment map to determine whether their location has been identified in the previous food assessments.

1. Always write down the address of the store that you are entering.
2. Wheat Bread: Is there any bread in the store that reads 100% wheat bread?
3. Is there milk available in the store? Is there skim milk available?
4. Read the ingredients of the products that you regularly buy. Of all the products that you buy, how many items do not contain **HIGH FRUCTOSE CORN SYRUP** ?
5. List all the fruits and vegetables that are available.
6. Where are the eggs from?

Trip to Pathmark

Write down any produce that is labeled **ORGANIC**—**If you find any organic find the same type in conventional. Compare prices. What do you notice?**

**Extra Credit:** Write down the fruits and vegetables you would want to grow in your garden.

Write down the vegetables and research their countries of origin.

Direct links have been drawn between high fructose corn syrup and Type II diabetes.

2620 Mt. Ephraim Ave: Produce Junction specializes in fresh local fruit, vegetables, dairy, and herbs. They sale wholesale (cheaper for bulk).

**AHEC Farmer's Markets** visit Jersey Fresh Farmer's Market Link for updated local Farmer's Markets in Camden and the region.

Community Gardens: visit the bottom of [www.healthycamden.blogspot.com](http://www.healthycamden.blogspot.com) for an updated list of all of Camden's old and new community gardens.

## **SCAVENGER SALAD VIDEO**

This activity develops the skills of map-making and map reading, general special intelligence.

Lemon Clover is one of our favorite edible weeds. It actually tastes like lemon. When you harvest it for your salad be sure not to pull the whole plant out because you do want it to continue grow.

Harvest the lettuce by pulling it out of the ground. Gently twist the roots off and leave them in your garden bed/compost them. This makes the cleaning process much easier. The iceberg lettuce that we buy at most grocery stores and is served in many restaurants basically has no nutritional value. There are over one hundred different varieties of lettuce. Have the youth explore the "seed catalog" section of [www.healthycamden.blogspot.com](http://www.healthycamden.blogspot.com) to look at the different types of lettuces.

Strawberries are perennials, which means they come back every year. They spread very quickly, and you can establish a nice strawberry patch. They are ready for harvest at the beginning of June. Visit local farms to harvest additional quarts of strawberries.

Homemade Yogurt based dressing: Cool-whip, honey, skim milk, local strawberry yogurt.

You can also add pears, peaches and apples for salad variety.

Random Garden Tips: corn/popcorn should be knee high by the 4<sup>th</sup> of July.

Always wash your vegetables even if you are practicing organic principles.

Plant black beans as you harvest lettuce in long furrows made with a hoe. Plant the beans three inches apart and gently cover up.

Later in the summer you can harvest the cherry tomatoes for your salad. By that time the strawberries will be done for the year. You can also make a wide variety of dressings.

Visit [www.camdenrecipes.blogspot.com](http://www.camdenrecipes.blogspot.com) for recipe ideas.

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# Healthy Camden's Toolkit

## HOW-TO:

Contents:

### **Handbook**

**DVD**—6 videos directed, filmed, and edited by Eve's Garden Jr. Farmers (Waterfront South)

1. Beautiful Camden
2. Potato: Seed To Table
3. Eve's Garden: Environmental Justice
4. Rainbarrel
5. Community Food Assessment
6. Scavenger Salad

### **Master Gardeners Application**

### **Interactive WEBSITES:**

The purpose of these websites is to collect the information that the youth produce through the work of this toolkit. The youth are to post their findings on the appropriate website. Please e-mail [aferrich@gmail.com](mailto:aferrich@gmail.com) for the sign-in info to begin participating in this online community of people and information. Once your class has registered as a user of the toolkit your class/group is eligible to receive soil fertility and lead testing kits.

~ *HealthyCAMDEN*- [www.healthycamden.blogspot.com](http://www.healthycamden.blogspot.com) Curriculum Links, embedded videos, seed catalogues, community garden contacts, general questions,

~ *Camden Food Assessment*- <http://camdenfoodassessment.blogspot.com>

Community Food System Database, video, post findings from Community Food Assessment assignments

~ *Camden Recipes*- [www.camdenrecipes.blogspot.com](http://www.camdenrecipes.blogspot.com)

A collection of the recipes of Camden, old and new , emphasizing our cultural heritage and growing nutrition initiatives.

Soil Testing Kit: For complete instructions please visit [www.healthycamden.blogspot.com](http://www.healthycamden.blogspot.com) post a comment, and ask for a toolkit (please include your e-mail address).

Directions for Soil Testing Kit

Planning <http://njaes.rutgers.edu/pubs/publication.asp?pid=fs797>

Sample separately the areas used for different types of plants. For example, keep samples taken from lawn areas separate from samples taken from flower and shrub areas. Samples from areas with rhododendron, azalea, and other acid- loving plants should be kept separate from samples taken from areas with other types of shrubs. In other words, **most samples should represent only one type of planting**. If more than three types of plantings are selected, the sample probably represents none of them well.

Also sample separately areas that have received different lime and/or fertilizer treatments in the past. Do not sample areas that have been limed or fertilized within the past 6 weeks unless trouble is evident.

Where poor growth exists, separate samples should be taken from both good and bad areas, if possible.

To obtain a representative sample, plan to collect multiple subsamples at random locations within each area.

Each sample must be submitted with a corresponding soil test questionnaire. **Sampling procedure** - this procedure is also described in FS797, Soil testing for home lawn & gardens

<http://njaes.rutgers.edu/pubs/publication.asp?pid=fs797>

Hint: For ease of sampling, the soil should be moist, but not too wet. Moisten if necessary; allow to soak in or drain.

Use a trowel or spade to obtain thin vertical slices of soil, or a soil tube or auger to obtain cores, from the surface to a depth of 6-7". If using a trowel or spade, dig a hole to a depth of 6-7", setting the soil aside. Then take a thin slice of soil from the face of the hole. From the center of this slice, cut a 1" wide subsample from top to bottom.

Place the subsample in a clean plastic bucket.

Repeat this procedure at 10-15 locations within the sampling area, placing all subsamples together in the container. (Exception: in areas smaller than 100 square feet, 5-10 subsamples will be adequate).

Mix all the soil in the container, breaking up subsamples and any large clods. The goal is to provide an average soil sample, representative of the area. If the soil is wet, allow it to air-dry by spreading it out on clean paper or plastic. Do not heat the soil. Dry samples reduce processing time as well as mailing costs.

Place 1 pint (2 cups) of soil in a plastic bag (sandwich-size), press out excess air, and seal carefully. Mark the bag with the sample ID using permanent ink. Double bagging is encouraged to prevent breakage/spill. Excess soil can be returned to the sampling holes.

## **Online Resources**

<http://www.sjenvironmentaljustice.org>

[http://www.worldhungeryear.org/fslc/faqs/ria\\_057.asp?section=3&click=1](http://www.worldhungeryear.org/fslc/faqs/ria_057.asp?section=3&click=1)

<http://media.www.dailypennsylvanian.com/media/storage/paper882/news/2001/11/12/News/From-ashes.Of.West.Philly.A.Community.Group.Rises.Up-2159297.shtml>

[http://www.scorecard.org/env-releases/county.tcl?fips\\_county\\_code=34007](http://www.scorecard.org/env-releases/county.tcl?fips_county_code=34007)

<http://www.ejrc.cau.edu><http://www.gardendallas.org/benefits.htm>

<http://www.urbannutrition.org/mission.html>

<http://guerrillagardening.org>

<http://www.ejnet.org/chester/documentary.html>

[http://www.npsnj.org/lists\\_njplants.htm](http://www.npsnj.org/lists_njplants.htm)

<http://www.diabetes.org/diabetes-basics/diabetes-statistics/> Diabetes Association Statistics

<http://www.mypyramid.gov/>

[www.meatrix.com](http://www.meatrix.com)

[www.mindfully.org](http://www.mindfully.org)

<http://www.grameen->

[info.org/index.php?option=com\\_content&task=blogsection&id=5&Itemid=164](http://www.grameen-info.org/index.php?option=com_content&task=blogsection&id=5&Itemid=164)).

<http://www.lifeanddebt.org/>

<http://www.sjgreendining.com/>

[http://www.panna.org/legacy/gpc/gpc\\_200104.11.1.08.dv.html](http://www.panna.org/legacy/gpc/gpc_200104.11.1.08.dv.html)

[www.scorecard.org](http://www.scorecard.org)

<http://oklahoma.sierraclub.org/greenteacher/Teaching%20about%20Food%20Systems.pdf>

<http://njaes.rutgers.edu/soiltestinglab/homegarden-instructions.pdf>

<http://attra.ncat.org/attra-pub/complant.html#chart>  
<http://www.blisstree.com/articles/crop-rotation-for-small-gardens/>  
<http://www.camdenchildrensgarden.org/>  
<http://www.sjenvironmentaljustice.org/about.htm>

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