

# Organic Opportunities

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- Gardening and Entrepreneurship
- Culinary Arts
- Math/Construction

# Life Learning Academy Project-Based Curriculum

**Project Title:** Organic Opportunities

**Project Design Team and/or Instructors:**

Park Guthrie, Science Teacher  
Robin Havens, Art and Business Teacher  
Clell Hoffman, Culinary Arts Teacher  
Jamie Pillers, Math/Construction Teacher

**Subject Areas:** Gardening, Entrepreneurship, Nutrition, Culinary Arts, Math and Construction

**Grade Level(s):** 9-12

**Project Overview:**

Nothing is more important to human life than food. Our health and well-being as individuals, as communities, and as a society relates directly to how we produce or acquire, distribute, and consume our food.

Life Learning Academy's Organic Opportunities uses food as tool to engage students in academic learning, vocational training, and personal development. By involving students in every component of the food system, Organic Opportunities also aims to alter students' relationship with food, inspiring them to develop healthy lifelong eating habits.

Organic Opportunities consists of four distinct classes: (1) Garden/Business, (2) Nutrition, (3) Culinary Arts, and (4) Math/Construction. Together students in these four classes develop and manage all components of the Organic Opportunities enterprise--- a backyard mini-farm and produce business. Students may be enrolled in up to two of the Organic Opportunities classes at a given time. All Life Learning Academy students participate in at least one Organic Opportunities class during their time as a student here.

Whether students are researching greenhouse designs, tabulating results from a market research questionnaire, analyzing the nutritional content of salsa, or discovering new and delicious ways to prepare Swiss chard, all coursework relates directly to the Organic Opportunities enterprise, and ultimately to student and community health and well-being.

Students in Organic Opportunities classes demonstrate their new knowledge and skills in a variety of ways throughout the year. The yearly culminating event, Organic Opportunities Open Garden, celebrates student growth and learning with family and community members.

# Garden/Entrepreneurship Curriculum

## Overview:

The Organic Opportunities Garden/Entrepreneurship Curriculum focuses on two major themes: (1) the creation and maintenance of a schoolyard mini-farm, and (2) the creation and operation of a produce business.

All student academic efforts relate directly to specific activities required to either maintain the mini-farm or manage the produce business. Gardening activities and lessons include garden-bed construction, plant propagation, harvesting, soil science, and ecology. Entrepreneurship activities and lessons include market research, marketing principles and techniques, business accounting, advertising campaigns, product display, retail sales, and customer service.

Students demonstrate their increased knowledge and skills through a wide variety of written assignments and oral presentations throughout the year.

## Educational Standards Addressed:

### Reading

- 2.3 Generate relevant questions about readings on issues that can be researched.
- 2.4 Synthesize the content from several sources or works by a single author dealing with a single issue; paraphrase the ideas and connect them to other sources and related topics to demonstrate comprehension.

### Writing

- 1.1 Establish controlling impression or coherent thesis that conveys a clear and distinctive perspective on the subject and maintains a consistent tone and focus throughout the piece of writing.
- 1.2 Use precise language, action verbs, sensory details, appropriate modifiers, and the active rather than the passive voice.
- 1.3 Use clear research questions and suitable research methods (e.g., library, electronic media, personal interview) to elicit and present evidence from primary and secondary source.
- 1.4 Develop the main ideas within the body of the composition through supporting evidence (e.g., scenarios, commonly held beliefs, hypothesis, and definitions).
- 1.9.1 Revise the writing to improve the logic and coherence of the organization and controlling perspective, the precision of word choice, and the tone by taking into consideration the audience, purpose, and formality of the context.
- 2.5 Write persuasive compositions:

- a. Structure ideas and arguments in a sustained and logical fashion.
- b. Use specific rhetorical devices to support assertions (e.g., appeal to logic through reasoning; appeal to emotion or ethical belief; relate a personal anecdote, case study, or analogy).
- c. Clarify and defend positions with precise and relevant evidence, including facts, expert opinions, quotations, and expressions of commonly acceptable beliefs and logical reasoning.
- d. Address readers' concerns. Counterclaims, biases, and expectations.

## Written and Oral English Language Conventions (W/O)

- 1.1 Identify and correctly use clauses (e.g., main and subordinate), phrases (e.g., gerund, infinitive, and participial), and mechanics of punctuation (e.g., semicolons, colons, ellipses, hyphens).
- 1.2 Understand sentence construction (e.g., parallel structure, subordination, proper placement of modifiers) and proper English usage (e.g., consistency of verb tenses).
- 1.3 Demonstrate an understanding of proper English usage and control of grammar, paragraph and sentence structure, diction, and syntax.
- 1.4 Produce legible work that shows accurate spelling and correct use of the conventions of punctuation and capitalization.

## Listening and Speaking Strategies (L/S)

- 1.7 Use props, visual aids, graphs, and electronic media to enhance the appeal and accuracy of presentations.
- 1.8 Produce concise notes for extemporaneous delivery.
- 1.9 Analyze the occasion and the interests of the audience and choose effective verbal and nonverbal techniques (e.g., voice, gestures, eye contact) for presentations.
- 1.11 Assess how language and delivery affect the mood and tone of the oral communication and make an impact on the audience.
- 1.12 Evaluate the clarity, quality, effectiveness, and general coherence of a speaker's important points, arguments, evidence, organization of ideas, delivery, diction, and syntax.
- 2.0 Speaking Applications (Genres and Their Characteristics)
- 2.6 Deliver descriptive presentations:
  - a. Establish clearly the speaker's point of view on the subject of the presentation.
  - b. Establish clearly the speaker's relationship with that subject (e.g., dispassionate observation, personal involvement).
  - c. Use effective, factual descriptions of appearance, concrete images, shifting perspectives and vantage points, and sensory details.

## **Challenge Standards:**

### Business Career Path: Marketing

- 5.1 Students will understand concepts, strategies, and systems needed to interact effectively with others. They will demonstrate competency by utilizing effective communication.
- 5.1.2 *Customer Relations* – describe interpersonal skills needed to develop effective customer relationships, including conflict management and resolution in a workplace environment.
- 5.1.3 *Customer Service* – explain customer service options appropriate for selected businesses and target markets.
- 5.1.5 *Profitability* – explain the importance of customer service and the overall impact on profitability.
- 5.2 Marketing Strategies (CL): Students will understand the strategies and concepts of marketing with a global perspective. They will demonstrate competency by applying marketing knowledge to a variety of business situations.
- 5.3.5 *Marketing Research* – design a marketing research project.
- 5.3.6 *Product/Service Strategy* – justify the concepts and processes needed to purchase, develop, maintain and improve a product or service mix in response to market opportunities.

## **Challenge Standards:**

### Agricultural Education (A) (Grades 9 – 10)

Standard 1: Students will understand the interrelationship of California agriculture and society, and the interrelationship of agriculture with the economy, environment, and natural resources.

Standard 6: Students will show they understand the operating principals of common tools and the safe operation of power tools and small engines. Students will demonstrate safe and appropriate use of selected landscaping and maintenance tools.

Standard 10: Students will show they understand the role of soil in plant production and the requirements for plant growth and development. Students will identify and explain the major factors affecting the ability of soil to support plant growth. Students will identify and explain the function of the major plant systems and structures.

(Grades 11 – 12)

Standard 5: Students will show an understanding of concepts and function of marketing and sales in agriculture on both the local and international level. Students will design a marketing plan for an agricultural product or device and present it as a potential business.

**Project Objectives:**

- Students understand and demonstrate basic gardening and farming practices
- Students have a local and global vision of conscientious gardening and food production techniques
- Students participate in the process of planning and operating the Organic Opportunities business enterprise
- Students learn marketing and market research skills and techniques

**Student Expected Outcomes:**

- Students will be able to demonstrate seed germination knowledge and seeding and transplanting skills.
- Students will be able to demonstrate proficiency in basic gardening techniques and practices.
- Students will be able to explain the relevance of conscientious gardening practices to local and global communities.
- Students will participate in the planning and operation of the Organic Opportunities business enterprise.
- Students will be able to demonstrate basic marketing tasks, such as researching a designated market, identifying the competition, and using the Four Marketing P's of product, price, place and promotion, to develop a product or service.
- Students will write a market research plan for the Organic Opportunities business enterprise.
- Students will give a structured tour of the Life Learning Academy garden that demonstrates understanding of garden history, crops, layout, goals and the students' personal contribution.

### **Texts and Supplemental Instructional Materials:**

1. Alameda County Waste Management Authority & Source Reduction (Producer) and Recycling Board (Producer). (1997). *Do the Rot Thing: The simple art of home composting* [Motion Picture]. (Available from Alameda County Waste Management Authority & Source Reduction, Alameda County, CA, (510) 444-SOIL)
2. Attenborough, D. (Writer/Producer), & Salisbury, M. (Producer), BBC/Turner Original Productions, Inc. (Co-Producers). (1995) *David Attenborough's The Private Lives of Plants: The Birds and the Bees* [Motion Picture]. (Available from Turner Broadcasting Entertainment, One CNN Center, Atlanta, GA 30303)
3. Mariotti, S. & Towle, T. (2001). *How to Start & Operate a Small Business: A guide for the young entrepreneur* (Textbook/Workbook). New York, NY: The National Foundation for Teaching Entrepreneurship.
4. Pierce, P. (1998). *Golden Gate Gardening: The complete guide to year-round food gardening in the San Francisco Bay Area & Costal California*. Seattle, WA: Sasquatch Books
5. Pierce, P. (1995), Handout on Seed Germination, From Horticulture 101, City College of San Francisco.
6. The Sierra Club Sustainable Consumption Committee (Producer). (2004). *The True Cost of Food* [Motion Picture]. (Available from Sierra Club at [www.truecostoffood.org](http://www.truecostoffood.org) and Sierra Club Foundation, 1155 Park Avenue, New York, NY 10128)

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
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## Organic Opportunities Gardening and Entrepreneurship Curriculum Outline

<b>1</b>  W 1.2, 1.3, 1.4	<b>Introduction to Course</b>	<p>1. Students make their own garden journal by folding ten pieces of printer paper with a sturdy-weight cover and stapling the center fold. On the first page they should copy down the following instructions:            “A journal must have the following PLUS a signature to receive 5 full points:            Date            1. Sketch a living or once-living thing. Label it.            2. Weather observation (high/low temperature, sky conditions)            3. Garden tasks accomplished.            4. One thing learned today.            5. One question, one suggestion for the garden, or one reaction to class today.”            Students should do a garden journal entry at the end of each class and have each entry signed by a teacher</p> <p>2. Briefly lay out the purpose of this course; explain goals and objectives of course. Explain the goals of starting a small business that offers a valuable service to the community.</p> <p>3. Have students generate a list of class rules. This can also include ways to gain or loose</p>	<p>Ten pieces of 8.5” x 5.5” paper for each student. One 8.5” x 5.5” heavier-weight piece of paper for the cover</p> <p>Stapler</p> <p>Cardboard, woodchips and gloves</p> <p>Wheelbarrows, shovels, pitchforks and rakes</p> <p>Letter to the Teacher</p>	<p>Prepare journal materials</p> <p>Collect cardboard and tools</p>	<p>Garden journals</p> <p>Letter to teacher</p>
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		<p>participation points. When students have generated a list, lead a group discussion to consolidate and confirm the list as class rules or guidelines.</p> <p>4. Demonstrate how to lay paths between garden beds; lay down multiple layers of cardboard and cover with at least three inches of woodchips. Have students work in small groups to lay paths.</p> <p>5. Have each student write a letter to the teacher. Use worksheet Letter to the Teacher. Personalize with actual teacher names.</p> <p>6. Students complete garden journal.</p>			
<b>2</b> R 2.3, 2.4  W 1.1  W/O 1.1, 1.2, 1.3, 1.4  L/S 2.6	<b>Marketing</b> (NFTE <b>Chapter 11)</b>	<ol style="list-style-type: none"> <li>1. Divide students into groups of 2-3.</li> <li>2. Assign each group to read one or two sections of Chapter 11: What is Marketing? (NFTE Textbook)? <ol style="list-style-type: none"> <li>a. What is Marketing (p.117) Your Marketing Strategy and Location, Location, Location (p.118) Marketing Strategy (p. 118)</li> <li>b. What is Marketing? (p.119) Cause-Related Marketing (p.120) Technology Tips (p.120)</li> <li>c. Russell Simons: Marketing Hip-Hop Culture (p.121) Your Brand Represents You and Brand Recognition (p.122)</li> </ol> </li> <li>3. Give groups 15 to 20 minutes to read their</li> </ol>	NFTE Textbooks and Workbooks (Mariotti, & Towle, 2001)		Analyzing Your Market worksheet  Marketing Plan worksheet

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
B 5.1, 5.2, 5.3.7		<p>sections. They should then:</p> <ol style="list-style-type: none"> <li>a. Summarize their section in 3 – 5 written sentences</li> <li>b. Answer the following sentences as part of their summary: <ol style="list-style-type: none"> <li>i. Define Marketing. Explain the process of inventing a marketing strategy. Why is ‘place’ so important? Give two examples of how you could sell to your market.</li> <li>ii. What are the Four P’s of marketing? How do you set a price for a product? How do you develop a product? Chose a product and apply all Four P’s to that product. What is cause-related marketing?</li> <li>iii. Explain Russell Simmons entrepreneurial story. How did Simmons use ‘image-making’ to promote hip-hop culture? Why is a reputation important to a business?</li> </ol> </li> </ol> <p>4. Each group presents their summaries to the class.</p> <p>5. Chapter 11 worksheet Analyzing Your Market (p.59 – 60, NFTE Workbook). Students should refer to the class business, Organic Opportunities, when discussing the ‘business they want to start’.</p> <p>6. Work in small group to complete Marketing Plan worksheet (p.61, NFTE Workbook).</p>			

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<b>3</b>  <b>B</b> 5.2, 5.3.7  <b>A</b> Standards 6, 10	<b>Marketing Review and Garden Tasks</b>	<ol style="list-style-type: none"> <li>1. Have students take the Marketing Quiz.</li> <li>2. Each student starts a binder. Dividers show separate areas for Toolkits, Assignments and Projects.</li> <li>3. Demonstrate and explain proper tool safety techniques. Proper tool care includes cleaning and storing tools after use. Demonstrate proper power tool operation and care. Tools should never be thrown or left on the ground.</li> <li>4. Divide students in groups of 2 – 3 students each. Students work on the following tasks or other relevant garden tasks.               <ol style="list-style-type: none"> <li>a. Inventory and organize tool shed; count tools and order any necessary tools and build a tool board (peg board). Make a place for each tool that is clearly labeled.</li> <li>b. Water plants, harvest vegetables, herbs and fruits.</li> <li>c. Lay paths between beds with cardboard and woodchips.</li> </ol> </li> <li>5. Gather the class and hand each student a seed (preferably a large seed). Ask, “What do we need to do to this seed to make it grow?” Have students brainstorm answers as you record their ideas on an overhead projector. Slowly eliminate incorrect answers and narrow down to five</li> </ol>	Marketing Quiz  Binder, dividers  Garden tools  Seeds, seed packets  Seed toolkit  Materials for tool board (peg board and peg board hardware)  Overhead projector	Make copies  Gather materials	Marketing quiz  Seed toolkit  Garden Journals

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		<p>necessities (water, soft soil, warmth, oxygen and protection from pests). Explain that these are the five conditions necessary for germination, the technical term for how to make a seed grow. Hand out a seed packet to each student and have students read planting instructions.</p> <p>6. Hand out “Seed Toolkit” and have students complete.</p> <p>7. Students complete garden journals.</p>			
<b>4</b> A Standards 1, 5	<b>Fieldtrip to Farmers’ Market</b>	<p>Explain that you are going on a fieldtrip to a farmers’ market to get ideas and experience for class business. Ask students, “Has anyone been to a farmers’ market? What do you expect to find there? How could this visit help our business?”</p> <p>At the farmers’ market have students work in groups of 2 – 3 to complete Farmer’s Market worksheet. Encourage students to talk to farmers about their production process and challenges. How do they market their product at the farmers’ market?</p>	<p>Van/ transportation</p> <p>Clipboards</p> <p>Farmers’ Market worksheet</p>	<p>Prepare for trip</p> <p>Copy worksheet</p>	Farmers’ Market worksheet
<b>5</b>	<b>Construct a Garden Bed</b>	<p>During this class, students will increase growing space in the garden by constructing raised garden beds. Divide the class into two or more teams of four to five students. Each team will construct a garden bed following directions on the <i>How to Build a Garden Bed</i> handout included in the appendix. Rate each group on Teamwork, Quality</p>	<p>Various---see <i>How to Build a Garden Bed</i> handout</p>	<p>Gather one set of tools and materials for each group</p>	<p>Finished product</p> <p>Observational notes in the following categories: Teamwork, Efficiency, Fun</p>

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		of Work, Efficiency, and Fun.			
<b>6</b>  L/S 1.7, 1.9, 1.11, 1.12, 2.6  B 5.1, 5.1.2, 5.1.3, 5.1.5, 5.2, 5.3.7  A Standards 1, 6	<b>Marketing Skit and Garden Tasks</b>	1. Divide students into groups of 2 – 3. Explain that each group will present a ten-minute skit about the first day of Organic Opportunities operation. Hand out a copy of the Marketing Skit Rubric to each group. Give students time to plan and practice; they should clearly plan who will say what and the evolution of the story line. They should integrate information from the reading as well as their experiences at the Farmer’s market.  2. Students perform skits. Use rubric to assess performance.  3. Divide students in groups of 2 – 3 students each. Students work on the following tasks or other relevant garden tasks: a. Water plants, harvest vegetables, herbs and fruits. b. Paint small signs to label various crops. Seal small pieces of wood and paint crop names with acrylic paint. Seal final sign with an outdoor sealant. When signs dry, attach a stake to the back of each so that they can be placed in soil next to the crop. c. Begin to construct garden beds. Pre-drill wood to posts and dig post holes. Set in pre-attached pieces and connect with board. Fill beds with a soil/compost mix.	Props for skits  Marketing Skit Rubric  Small wood pieces for signs  Paint, sealer, stakes  Garden bed materials (wood, power tools, screws, goggles, posthole digger, compost and soil)	Gather materials  Copy rubric	Marketing Skit Rubric  Garden Journals

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		4. Students complete a journal entry.			
7 A Standards 6, 10	<b>Direct Seeding and Garden Tasks</b>	<p>1. Demonstrate planting in rows and broadcast seeding. Explain how to accurately read a seed pack for planting instructions. Give each student a seed pack, planting tray and soil (soil should be pre-moistened. Review with students conditions necessary for germination.</p> <p>2. Each student plants some seeds in rows and some by broadcasting. Explain how to label seed trays and have each student label their tray.</p> <p>3. Students complete Direct Seeding Toolkit.</p> <p>4. Hand out Growing Plants from Seed – Possible Problems (1995, Pierce). Put a transparency of the sheet on the overhead and go over each possible reason for non-germination with the class.</p> <p>5. Divide students in three groups of 2 – 3 students each. Students work on the following tasks or other relevant garden tasks:</p> <p>a. Water plants, harvest vegetables, herbs and fruits.</p> <p>b. Continue to construct garden beds. Pre-drill wood to posts and dig post holes. Set in pre-attached pieces and connect with board. Fill beds</p>	<p>Seed packets, soil, seeding trays, water</p> <p>Direct Seeding Toolkit</p> <p>Growing Plants from Seed handout</p> <p>Garden bed materials (see above)</p> <p>Seeding materials</p>	<p>Collect materials</p> <p>Copy toolkit and handouts</p>	<p>Direct Seeding Toolkit</p> <p>Garden Journals</p>

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		<p>with a soil/compost mix.</p> <p>c. Direct seed appropriate seeds for the season. Label seed trays and place in a warm spot (preferably a greenhouse or sunny, protected spot).</p> <p>6. Students complete a garden journal entry.</p>			
<p><b>8</b></p> <p>A Standard 10</p> <p>R 2.3, 2.4</p> <p>W 1.1</p> <p>W/O 1.1, 1.2, 1.3, 1.4</p> <p>L/S 2.6</p> <p>B 5.2, 5.3.5</p>	<p><b>Composting and Market Research (NFTE Chapter 14)</b></p>	<p>1. Show the movie “Do the Rot Thing” about composting. Students complete related worksheet.</p> <p>2. Walk out to composting bin and observe composting process. Have students touch and smell completed compost. Does it smell bad? What does it feel like? Review the benefits of compost for crops and garden health. Outline soil composition and balance of nutrients.</p> <p>3. Divide students into groups of 2-3.</p> <p>4. Assign each group to read one or two sections of Chapter 14: Market Research.</p> <p>a. Listen to the Consumer (p.149) and Types of Market Research (p.150)</p> <p>b. Marketing Can’t Save a Bad Product: the Edsel (p.150) and Research Your Market before You Open Your Business (p.151)</p> <p>c. Collecting Data on the Market (p.151) and</p>	<p>“Do the Rot Thing” movie (Alameda County Waste Management Authority &amp; Source Reduction, 1997)</p> <p>VCR/DVD player</p> <p>Do the Rot Thing worksheet</p> <p>NFTE textbook and workbooks (Mariotti, &amp; Towle, 2001)</p>	<p>Reserve TV</p> <p>Copy worksheets</p>	<p>Do the Rot Thing worksheet</p> <p>Market Research worksheet</p> <p>Analyzing the Competition worksheet</p>

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		<p>Market Research Avoids Costly Mistakes (p.152)</p> <p>5. Give groups 15 to 20 minutes to read their sections. They should then:</p> <ul style="list-style-type: none"> <li>a. Summarize their section in 3 – 5 written sentences.</li> <li>b. Answer the following sentences as part of their summary: <ul style="list-style-type: none"> <li>i. What is the market for Organic Opportunities? What is Market Research? Explain the three types of market research. What are ‘demographics’?</li> <li>ii. Explain the story of the Edsel. What went wrong? Can good marketing save a bad product?</li> <li>iii. What four factors are important to collect information about during our market research? Which of the questions listed would be good for us to ask our market? What is the best way to avoid costly marketing mistakes?</li> </ul> </li> <li>c. Each group presents their summaries to the class.</li> </ul> <p>6. Students do Market Research Worksheet (page 72 in NFTE workbook).</p> <p>7. Students work in small groups to research the Organic Opportunities market. They can use resources like the phone book, local websites and classmates who live in the market area. Students use the Analyzing the Competition worksheet on page 73 of the workbook to collect information</p>			

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		on four competitors and explain how Organic Opportunities will outperform the competition.			
<b>9</b> A Standard 10	<b>Pollination</b>	1. To make sure that all students understand the importance of pollination to a farm setting, show “The Birds and the Bees”. Have students do the accompanying Birds and Bees worksheet.	“The Birds and the Bees” movie (Attenborough, 1995)  Birds and the Bees worksheet  VCR/DVD player	Copy worksheet  Reserve TV	Birds and the Bees worksheet
<b>10</b> A Standards 6, 10  B 5.1, 5.2, 5.3.5	<b>Check Seedlings, Write Marketing Survey and Garden Tasks</b>	1. Use Growing Plants from Seed (1995, Peirce), to check on seed trays. Lay out all trays (that have grown for approximately two weeks) and have students guess as to why some trays had high or low germinations rates.  2. Demonstrate how to transplant seedlings. Students use the How to Transplant Toolkit to record the steps.  3. Gather students so that they can see an overhead projector. Students take out their textbook and Analyzing the Competition worksheet. Have a designated student record on the over head projector as the class brainstorm questions to go on the market research survey.	Seeded seed trays  Demonstration transplants  NFTE textbook and workbooks (Mariotti, & Towle, 2001)  Overhead Projector	Collect materials	Garden Journals

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		<p>The survey should be easily legible and be only one page long. Survey questions should address all of the Four P's. After brainstorm, narrow the questions down to an amount that can easily be administered in less than five minutes. Have one student type up the final draft and submit to school principal for approval. See attached Organic Opportunities Community Picnic Survey.</p> <p>4. The survey can be administered at a community event, such as community picnic or concert. Try to survey at an event that will include all necessary demographics.</p> <p>5. Divide students into groups of 2 – 3 students each. Students work on the following tasks or other relevant garden tasks:</p> <ul style="list-style-type: none"> <li>a. Water plants, harvest vegetables, herbs and fruits.</li> <li>b. Continue to construct garden beds. Pre-drill wood to posts and dig post holes. Set in pre-attached pieces and connect with board. Fill beds with a soil/compost mix.</li> <li>c. Transplant mature seedlings in completed garden beds. Water gently and label.</li> </ul> <p>6. Complete garden journal.</p>			

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<b>11</b> B 5.1, 5.1.5, 5.2, 5.3.5  L/S 1.11	<b>Conduct Market Research</b>	1. Conduct survey with a small group of students at a community event. Collect as many surveys as possible. This is also a good opportunity to promote Organic Opportunities and sell some of the vegetables and herbs that are ready. Survey participation can be enhanced by offering, for example, free flowers for survey participants.	Market research survey (developed in last lesson)  Clipboards, pencils	Collect materials	
<b>12</b> B 5.2, 5.3.5, 5.3.7  W 1.1, 1.2, 1.3, 1.4, 2.5  W/O 1.1, 1.2, 1.3, 1.4  A Standard 5	<b>Tally Surveys, Debrief Results and Garden Tasks</b>	1. Give each student a frequency chart and pass surveys around so that all surveys are counted. End results should be recorded on an overhead projector and be stated in percentages. For example, “30% of those surveyed currently have access to fresh produce weekly and 70% do not.”  2. Hand out Persuasive Essay Assignment. Students should use any relevant worksheet, research and market research to complete assignment.  3. Divide students into groups of 2 – 3 students each. Students work on the following tasks or other relevant garden tasks: a. Water plants, harvest vegetables, herbs and fruits. b. Weed beds and deadhead flowers. c. Continue to construct garden beds. Pre-drill wood to posts and dig post holes. Set in pre-attached pieces and connect with board. Fill beds with a soil/compost mix.	Computer lab access  Frequency charts  Persuasive essay assignment  Garden bed materials	Collect materials  Copy handouts	Garden Journals

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		4. Students complete garden journals.			
<b>13</b> A Standard 1	<b>Local Food Movement</b>	<p>1. Bring a few pieces of produce from a supermarket to class. Ask students to guess how far each piece traveled from where it was grown. Have them guess how much each piece of produce cost.</p> <p>2. Show <i>True Cost of Food</i>. Write some focusing questions on the board: “What do they mean by the ‘Real Cost’ of a food? Name a ‘Real Cost’ that is paid by the environment for food that travels a long distance. Name three example of eating foods that are grown locally.”</p> <p>3. Lead a discussion after the movie to review the content. Have students contribute their answers to the question and develop a class definition of the Local Food Movement.</p>	<p>Store-bought fruit</p> <p><i>True Cost of Food</i> movie (The Sierra Club Committee on Sustainable Consumption, 2004)</p> <p>Movie questions</p> <p>VCR/DVD player</p>	<p>Reserve TV</p> <p>Copy movie questions</p>	Movie questions
<b>14</b> B 5.2, 5.3.5, 5.3.7 W	<b>Persuasive Essay</b>	<p>1. Students continue work on persuasive essay. Begin revision process. Remind them of due dates.</p> <p>2. Divide students into groups of 2 – 3 students each. Students work on the following tasks or other relevant garden tasks:</p>	Computer lab access		Garden Journals

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
1.1, 1.2, 1.3, 1.4, 1.9, 2.5  W/O 1.1, 1.2, 1.3, 1.4  A Standard 10		a. Water plants, harvest vegetables, herbs and fruits. b. Weed beds and deadhead flowers. c. Transplant seedlings and plant new seedlings.  3. Students complete Garden Journal.			
<b>15</b>  B 5.2, 5.3.5, 5.3.7  W 1.1, 1.2, 1.3, 1.4, 1.9, 2.5  W/O 1.1, 1.2, 1.3, 1.4  A Standard 1	<b>Persuasive Essay and Climate Assignment</b>	1. Persuasive essay draft due.  2. Students use the San Francisco Climate Worksheet to research our unique local climate. They use the internet to look at specific local climate records and Golden Gate Gardening (1998, Pierce) to research planting times for crops.  3. Students who finish early should make a flier for the next Organic Opportunities farm stand day.	Computer lab access  Internet access  San Francisco Climate worksheet  <i>Golden Gate Gardening</i> (Pierce P., 1998)	Copy worksheet	Persuasive Essay

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
<b>16</b>  A Standard 10	<b>Promotion for  OO Farm  Stand Field  Trip</b>	1. Have farm stand flier approved by school principal and make copies on colored paper. Put up fliers in the neighborhood to alert the public to the upcoming farm stand date. Remember to return after the market day and remove fliers.  2. Divide students in three groups of 2 – 3 students each. Students work on the following tasks or other relevant garden tasks: a. Water plants. b. Harvest vegetables, fruits and herbs. c. Make signs to label produce on table. Students can fold index cards in half and use brightly colored pens.  3. Students complete a Garden Journal Entry.  4. Make any other preparations for the sale day. Collect a cash box, change, bags, etc.	Fliers, tape  Sign-making materials	Copy fliers  Collect materials	Garden Journals

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
<b>17</b> B 5.1, 5.1.2, 5.1.3, 5.1.5, 5.2, 5.3.7	<b>Organic Opportunities Farm Stand Day</b>	1. Conduct an afternoon farm stand at a convenient location in the neighborhood. Have two to three students work the sale. Before opening, review relevant customer service strategies. What should students say to customers? Can they bargain on the prices? How should students handle difficult customers? Encourage students to explain the growing process and location to customers; this is informative as well as a good marketing strategy!	Farm Stand materials, produce, table, tent, signage	Gather materials	Receipt book
<b>18</b> B 5.1, 5.1.2, 5.1.3, 5.1.5, 5.2, 5.3.7  L/S 1.7, 1.8, 1.9, 1.11, 1.12, 2.6	<b>Debrief Sale Day and Introduce Garden Tour Assignment</b>	1. Students who worked the farm stand sale report to the class. They report about what produce sold, what did not and a gross sales total. They also add any improvement suggestions for the next sale day.  2. Hand out the Garden Tour Assignment. Explain that students will tour special guests (other teachers or community members) around the garden on a given date. Students should use note cards during the tour to organize their thoughts. They can use all materials and resources from the class, as well as teachers to gather their information.  3. Divide students into groups of 2 – 3 students each. Students work on the following tasks or other relevant garden tasks: a. Water plants and harvest produce. b. Plant transplants in empty garden beds.	Garden Tour Assignment  Note cards	Copy Assignment	Garden Journals

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
		<p>c. Plant seeds in seeding trays.</p> <p>4. Students complete a Garden Journal entry.</p>			
<p><b>19</b></p> <p>L/S 1.7, 1.8, 1.9, 1.11, 1.12, 2.6</p> <p>A Standards 1, 10</p>	<p><b>Prepare Garden Tour and Garden Tasks</b></p>	<p>1. Students prepare for garden tour.</p> <p>2. Divide students into groups of 2 – 3 students each. Students work on the following tasks or other relevant garden tasks:</p> <p>a. Water plants and harvest produce. b. Plant transplants in empty garden beds. c. Maintain paths and lay paths with cardboard and woodchips</p> <p>3. Students complete a garden Journal entry.</p>	<p>Garden Tour Assignment</p> <p>Note Cards</p>		<p>Garden Journals</p>
<p><b>20</b></p> <p>L/S 1.7, 1.8, 1.9, 1.11, 1.12, 2.6</p> <p>A Standards 1, 10</p>	<p><b>Garden Tours</b></p>	<p>1. Students lead teachers, students and community members on garden tour. Teachers complete grading rubric to assess performance.</p>	<p>Garden Tour Assignment</p> <p>Clipboards</p>	<p>Invite guests</p> <p>Make copies of rubric</p>	<p>Garden Tour Rubric</p>

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
<b>21</b>  B 5.1, 5.1.5, 5.2, 5.3.7  A Standards 1, 6, 10, 5	<b>Final Test</b>	1. Students take Final Exam.  2. Class celebration; have snacks (made from your harvest) and beverages to celebrate the success of Organic Opportunities!	Final Exam  Food, drinks	Prepare celebration food	Final Exam

# Organic Opportunities Culinary Arts Curriculum

## Overview:

The curriculum is designed to give the students a basic knowledge of cooking, nutrition, and the food industry using student-grown food. The cooking and nutrition knowledge gained will enable students to make informed food choices and prepare meals for themselves when living independently. The knowledge and skills acquired pertaining to the food industry will expose them to possible careers in culinary arts or food service, instill a positive work ethic, and provide students with the experience needed to obtain a job in the food industry. Students will also learn the importance of supporting local agriculture and the health benefits of organic produce.

## Educational Standards Addressed:

### Food Service and Hospitality Career Pathway Standards:

#### 2.0 Professional Standards/Dignity of Work

Students will understand what constitutes professional behavior, image, and standards. They will demonstrate content proficiency by:

2.2 Explaining the interdependence and importance of all jobs to the success of an organization.

#### 4.0 Safety Regulations and Emergency Procedures

Students will understand safe work habits, security, and emergency procedures for employment in food service and hospitality establishments. They will demonstrate content proficiency by:

4.2 Describing the types and causes of accidents;

4.4 Demonstrating proper procedures for lifting;

4.7 Explaining the procedures for preventing and tending to heat, electrical, and chemical burns.

#### 6.0 Sanitation and Food Handling

Students will understand the principles of sanitation and safe food handling. They will demonstrate content proficiency by:

6.3 Using safe and sanitary procedures in all food handling, including food receiving, storage, production, service, and clean up.

#### 7.0 Technology, Tools, Utensils, Appliances, and Equipment

Students will understand the use of technology, tools, utensils, appliances, and equipment needed in food service production. They will demonstrate content proficiency by:

7.1 Identifying technology, tools, utensils, appliances, and equipment according to their functions in food production;

7.2 Describing proper use, care, and storage of tools, utensils, appliances, and equipment;

7.3 Using food production equipment appropriately, while adhering to safety guidelines.

#### 10.0 Nutrition

Students will understand approved dietary guidelines and ways in which food preparation affects nutritional values. They will demonstrate content proficiency by:

10.1 Describing nutritional principles and concepts;

- 10.2 Using food preparation techniques that conserve nutrients;
- 10.3 Interpreting nutritional or ingredient information from food labels and nutrition information sheets.

**11.0 Food and Beverage Production and Preparation**

Students will understand food preparation in professional and institutional kitchens, including skills used by chefs, bakers, and caterers. They will demonstrate content proficiency by:

- 11.3 Applying the principle of *mise en place* (set in place) in assembling ingredients, tools, and supplies;
- 11.4 Measuring and weighing ingredients according to a recipe's specifications;
- 11.8 Preparing a variety of food items, including pastas, fruit and vegetable dishes, dairy-based products, soups, salads, meat, poultry, sea foods, sandwiches, and beverages;
- 11.10 Analyzing time and energy-saving products and techniques used to prepare food items;
- 11.12 Accurately preparing recipes according to directions and procedures;
- 11.15 Adjusting standard recipes and using correct computational skills to serve more or fewer persons than specified.

**20.0 Teamwork and Leadership**

Students will understand the teamwork and leadership concepts and skills needed to succeed in work, personal, family, and community life. They will demonstrate content proficiency by:

- 20.3 Identifying and practicing strategies for effective teamwork, leadership, and citizenship in the workplace and community.

**Project Content:**

Project Goals and Rationale	Project Objectives and Student Outcomes
1. Students will learn how to work safely in a commercial kitchen	1. Students will be able to list and describe different types of accidents in the food industry 2. Students will be able to demonstrate proper lifting procedure for items no more than fifty pounds 3. Students will be able to explain how to prevent and treat heat, chemical and electrical burns
2. Students will learn basic culinary skills	1. Students will be able to identify, properly use, and maintain tools, utensils, appliances, and equipment 2. Students will be able to describe how to use, care for and store tools, utensils and equipment 3. Students will be able to prepare a variety of food items correctly and efficiently 4. Students will be able to follow a recipe 5. Students will be able to convert recipes to serve more or fewer people

3. Students will learn about basic food nutrition issues	1. Students will be able to read and interpret food nutrition labels. 2. Students will be able to identify healthy food options
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**Texts and Supplemental Instructional Materials:**

Department of Health and Human Services/Public Health Service

U.S. Food and Drug Administration and The International Food Information Council Foundation. (1994). The New Food Label: A Food Label Education Program for High School Students. From IFIC Foundation web site: <http://www.ific.org>. All worksheets in curriculum outline can be found at this web site.

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
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## Organic Opportunities

### *Culinary Arts Curriculum Outline*

<b>1</b> s/b 4.2	<b>Identifying Hazards and Causes of Accidents</b>	<p>Students brainstorm about different types of accidents in the kitchen.</p> <p>Teacher demonstrates correct knife usage and removal of hot items from the oven.</p> <p>Proper language while moving about the kitchen is discussed.</p>	Sheet pan, oven, knife, cutting board, carrot	Gather materials	Students are observed throughout the year-long class and mastery of tasks is noted on Competency Checklists
<b>2</b> s/b 4.4	<b>Proper Lifting</b>	<p>Teacher explains the importance of proper lifting and demonstrates correct and incorrect lifting procedures.</p> <p>Students make a poster demonstrating correct lifting procedure.</p>	25 pound box of beans  Poster board  Markers	Gather materials	Posters are evaluated for accuracy of information
<b>3</b> s/b 4.7	<b>Preventing and Treating Burns</b>	<p>Lecture on the three different types of burns: electrical, heat and chemical.</p> <p>Lecture on the ways to avoid getting burned and how to treat a burn.</p> <p>Give quiz on burns and burn treatment.</p>	Sheet pan, oven, electric mixer, rubber gloves, fryer boil-out	Gather materials	Quizzes graded by teacher

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
<b>4</b> s/b 7.1	<b>Identifying Tools, Appliances and Equipment</b>	Through experience and training, students will be made aware of names, purposes and procedures for use of equipment, tools, and appliances.	All kitchen equipment, tools, and appliances in Life Learning Academy's kitchen		Students quizzed verbally by teacher
<b>5</b> s/b 7.2, 6.3	<b>Maintenance of Tools, Appliances and Equipment</b>	Through experience and training students will be made aware of proper care and storage of tools, utensils, appliances, and equipment.	All equipment, tools, utensils and appliances in Life Learning Academy's kitchen		Students are observed throughout the year and mastery of tasks is noted on Competency Checklists
<b>6</b> s/b 7.3	<b>Equipment Safety</b>	Teacher will give demonstration on how to use equipment in a safe manner.  Students will practice explaining and demonstrating proper equipment usage.	Mixer, slicer, fryer, knives, flat top grill, broiler	Gather materials	Students are observed throughout the year and mastery of tasks is noted on Competency Checklists
<b>7a</b> s/b 10.3	<b>Understanding Nutritional and Ingredient Information: Food Labels</b>	Discuss the reasons for nutrition labeling of food. Fill bag with groceries and items from the garden. Have student pick item from bag. Have student name five things a label might tell them. On the board list the info. Brainstorm the reasons for food labeling. Explain how food choice affects student health.  Identify types of nutrition information on the new	Paper grocery bag  "What's New about the Food Label?" poster  "What's Inside the Package?"	Gather materials	Worksheets will be turned in and evaluated

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
		<p>label. Locate parts of the food label. Point out the nutrition facts panel. Talk about the parts: % daily value, serving size, calories nutrients fiber, etc. Point out how students can use the calories and the % daily value to see how a product fits into a 2,000-calorie diet. Have students look for nutrient content claims such as cholesterol free or low calorie. Explain how these are a quick reference but the nutrition facts give more specific information. Have students point out health claims on the products.</p> <p>Make simple comparisons among food products using the food label. Have students compare two different food products using the “What’s Inside the Package” activity sheet.</p> <p>Have students make comparisons using the label. Pose some different situations. For example: You missed your glass of orange juice. To get enough vitamin C what might you eat? What items in the garden could supplement your diet?</p>	<p>activity sheet</p> <p>Board</p>		

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
7b s/b 10.3	<b>Understanding Nutritional and Ingredient Information: Serving Size and Daily Value</b>	<p>Hold up two boxes of cereal. Ask: How would you pick the one that had the nutrients you need?</p> <p>Point out nutritional facts panel can help you compare calories and nutrients to help you make informed choices.</p> <p>Measure one cup of cereal in a bowl ask the students whether would this be a serving. Ask, “Why are serving sizes important?” Have students dish up a serving of how much they would eat or drink. Have them measure or weigh it and compare it to the label. Have the students compare their calorie intake to the label.</p> <p>Discuss Fat, % daily value, carbohydrate, protein, sodium and fiber in relation to the dietary guide.</p> <p>Determine personal goals for calorie and % daily values using the “Nutrition Facts-YO!” activity sheet.</p> <p>Have students plan a day’s menu to meet the % daily value using the nutrition facts labels on the food.</p>	<p>Food label poster, two large boxes of cereal, measuring cups, plates, glasses, scale, food to measure, variety of food packages and beverages</p> <p>“Nutrition Facts-YO” worksheet</p> <p>USDA Recommended Daily Allowance summary sheet</p>	<p>Gather materials</p> <p>Worksheet can be found at <a href="http://www.nifc.org/publications/other/tnfiles2.cfm?renderforprint=1">http://www.nifc.org/publications/other/tnfiles2.cfm?renderforprint=1</a></p>	<p>Activity sheets and menus will be turned in and evaluated</p>
7c s/b 10.3	<b>Understanding Nutritional and Ingredient Information: Facts and</b>	<p>Hold up traditional and fat free cheese slices. Ask what information on the label could help you decide what to buy? Have students taste and rate.</p> <p>Point out that “nutrient facts” give specific info,</p>	<p>Two or three packs of similar foods such as regular and reduced-fat</p>	<p>Gather materials</p>	<p>Worksheets will be turned in and evaluated</p>

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
	<b>Claims</b>	<p>and” content claims” give a general idea</p> <p>Have the students find content claims on the labels and write on the board. Circle the key word that helps describe the claims. Discuss which words mean more and which words mean less</p> <p>Using the “Make the Connection” page, students will discuss what the content claims mean in relation to their health</p> <p>Have students compare nutrient content claims of different products including items from the garden using the Label Dictionary page</p>	<p>cheese or regular, reduced-fat/light mayonnaise</p> <p>“Label Dictionary” and “Make the Comparison” sheets</p>		
<p><b>7d</b></p> <p>s/b</p> <p>10.3</p>	<p><b>Understanding Nutritional and Ingredient Information: Ingredients Lists</b></p>	<p>Hold up a frozen pizza. Ask “How do you know what is in this package?” Explain you can tell by the picture but there is also a list of ingredients. Explain that the nutrition facts are based on the ingredients</p> <p>Have a student read the info on a food label and write down the first 5 things. Explain items are listed in order of quantity.</p> <p>Explain that ingredients in parentheses tell what major ingredients are made of. Discuss the reason for ingredient list.</p> <p>Have students look for handling information and dates. Discuss what this information tells you.</p>	<p>Frozen pizza</p> <p>Food packaging with open dating and handling instructions</p> <p>Board to write on</p> <p>“Create a snack label” sheet</p>	<p>Gather materials</p>	<p>Snack labels will be turned in and evaluated</p>

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
		Have students create a label using the “Create a Snack Label” sheet. Have them design a fictitious label.			
7e s/b 10.3	<b>Understanding Nutritional and Ingredient Information: Dietary Guidelines</b>	<p>Discuss reasons for reading a food label. Using the poster, present the Food Guide Pyramid. Discuss the dietary guidelines and the food groups</p> <p>Have students classify all food packages and items from the garden in the five food groups and discuss what the nutrition facts tell about each food group. Have students identify which food groups are higher in fat and sugar using the labels and information gathered about items grown in the garden.</p> <p>Explain: To eat a balanced diet with enough nutrients you need to follow the pyramid guidelines for serving amounts. Serving amounts depend on your calorie level. Have students recall their calorie level from lesson 7b, then find how many servings they need each day.</p> <p>As a class, use the food labels to plan a sample day’s menu for a 17-year old boy who needs 2500 calories per day. Have students determine how many servings he needs from each food group and his/her day’s goal for % daily value. Explain the concept of trade-offs. For example, if you</p>	<p>Food Guide Pyramid poster</p> <p>Food packages and items from the garden representing all five food groups</p> <p>“Build your Own Pyramid” sheet</p>	<p>Write serving sizes and ranges from the Pyramid on the board</p> <p>Gather materials and worksheets</p>	Daily menus and 1-day food/drink record, and comparison data will be turned in and evaluated

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
		<p>have low fat milk you will be able to have ice cream later</p> <p>Have students create their own day's menu following the Pyramid guidelines using the "Build your Own Pyramid" sheet</p> <p>Have students record their food and beverage choices for one day including serving size. Using Pyramid guidelines along with nutrition information from labels, have students judge their meals and calculate and compare their personal pyramids with their target pyramids. Ask what changes might they make to improve their overall diet</p>			
<p><b>8</b></p> <p>s/b 11.3</p>	<p><b>Mis en Place</b></p>	<p>Explain the principle of <i>mis en place</i></p> <p>Show the principle of <i>mis en place</i> by setting up a breading station</p> <p>Demonstrate breading procedure pointing out the efficiencies using the principles of <i>mis en place</i></p>	<p>Three hotel pans, bread crumbs, flour, eggs</p>	<p>Crack and scramble eggs, place flour, crumbs, and egg in pans</p>	<p>Students are observed throughout the year and mastery of tasks is noted on Competencies Checklists</p>
<p><b>9</b></p> <p>s/b 11.4</p>	<p><b>Measuring and weighing ingredients according to a recipe</b></p>	<p>Identify and demonstrate how to use table and teaspoons, dry and wet measuring cups, and scales</p> <p>Divide students into groups and have each group bake a batch of chocolate chip cookies following a recipe</p>	<p>Table and teaspoons, wet and dry measuring cups, scale, flour, water</p>	<p>Gather materials</p>	<p>Students will be evaluated based on observation of procedures and quality of cookies.</p>

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
<b>10</b> s/b 11.8	<b>Cooking a variety of foods such as pasta, meat, chicken, eggs, salads, vegetables, rice and soups</b>	<p>Students will be assigned the task of making one of the items in the content outline. Students will use a recipe or create a recipe using items from the garden with the teacher's assistance.</p> <p>Throughout the year students will keep a personal record of tasks completed and quality of end product.</p>	Needed ingredients from the garden to complete task	Gather garden items and record sheets	Record sheets will be turned in and evaluated
<b>11</b> s/b 11.10	<b>Time saving methods for prep</b>	<p>Explain the theory of like motions when prepping. Demonstrate prepping an item not using like motions and one using like motions. Have the students count how many motions you make using both methods.</p> <p>Have students assess a time value for each motion and multiply by number of motions.</p> <p>Explain how over a day this time adds up.</p>	Cutting board, 10 onions, knife	Gather materials	Students are observed throughout the year and mastery of tasks is noted on Competencies Checklists

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
12 s/b 11/12	<b>Follow the direction of a recipe</b>	<p>Explain the importance of reading the entire recipe before you begin.</p> <p>Make Caesar dressing by placing all of the ingredients in the processor at once and blend.</p> <p>Make Caesar dressing following the directions.</p> <p>Compare and discuss the two end products with students.</p>	Food processor Ingredients for Caesar dressing	Gather materials	Students will be evaluated based on observation of procedures and quality of dressing
13 s/b 11.15	<b>Converting recipes</b>	<p>Explain computations used in converting recipes. Show examples of division, multiplication, addition, and subtraction of both whole numbers and fractions.</p> <p>Together on the board convert several recipes by increasing or decreasing by different amounts, consolidating measurements where needed.</p> <p>Give each student a recipe to increase or decrease by a different number. Go over completed conversions as a class.</p>	Recipe, Conversion chart  Calculators	Gather materials	Converted recipes will be turned in and evaluated for accuracy

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
14 s/b 20.3	<b>Leadership, teamwork and citizenship</b>	<p>Students will be given a list of duties as <i>sous chef</i> for the day. Duties include assigning cooking and cleaning tasks to other students and being responsible for food production being on time and of high quality.</p> <p>Student shows leadership by fostering teamwork and showing an example of good citizenship.</p>	List of duties	Copy materials	<p>Only students who become proficient in all of the standards will be allowed to become <i>sous chef</i>. They will be observed and reviewed by the teacher in the areas in the content outline.</p>

# Organic Opportunities Foods/Nutrition Curriculum

## Overview:

The Organic Opportunities Foods/Nutrition Curriculum empowers students to develop healthy, lifelong eating habits. Students first learn the basic principles of nutrition. Next, they use this knowledge to analyze their own eating habits. Then students examine ways the media influences them to adopt unhealthy eating habits. Finally, students counteract these messages by creating their own advertising campaigns promoting consumption of nutritious garden products. Throughout the course students visit the garden to harvest fresh, organic produce to use as class snacks.

Students demonstrate their increased knowledge and skills through a wide variety of written assignments and oral presentations throughout the year.

## Educational Standards Addressed:

### Reading

- 2.6 Generate relevant questions about readings on issues that can be researched.
- 2.7 Synthesize the content from several sources or works by a single author dealing with a single issue; paraphrase the ideas and connect them to other sources and related topics to demonstrate comprehension.

### Writing

- 1.5 Establish controlling impression or coherent thesis that conveys a clear and distinctive perspective on the subject and maintains a consistent tone and focus throughout the piece of writing.
- 1.6 Develop the main ideas within the body of the composition through supporting evidence (e.g., scenarios, commonly held beliefs, hypothesis, and definitions).
- 1.10 Revise the writing to improve the logic and coherence of the organization and controlling perspective, the precision of word choice, and the tone by taking into consideration the audience, purpose, and formality of the context.

### Written and Oral English Language Conventions (W/O)

- 1.2 Understand sentence construction (e.g., parallel structure, subordination, proper placement of modifiers) and proper English usage (e.g., consistency of verb tenses).
- 1.3 Demonstrate an understanding of proper English usage and control of grammar, paragraph and sentence structure, diction, and syntax.
- 1.4 Produce legible work that shows accurate spelling and correct use of the conventions of punctuation and capitalization.

## Listening and Speaking Strategies (L/S)

- 1.7 Use props, visual aids, graphs, and electronic media to enhance the appeal and accuracy of presentations.
- 1.9 Analyze the occasion and the interests of the audience and choose effective verbal and nonverbal techniques (e.g., voice, gestures, eye contact) for presentations.
- 2.0 Speaking Applications (Genres and Their Characteristics)
- 2.6 Deliver descriptive presentations:
  - a. Establish clearly the speaker's point of view on the subject of the presentation.
  - b. Establish clearly the speaker's relationship with that subject (e.g., dispassionate observation, personal involvement).
  - c. Use effective, factual descriptions of appearance, concrete images, shifting perspectives and vantage points, and sensory details.

### **Challenge Standards:**

#### Agricultural Education (A) (Grades 9 – 10)

*Standard 1:* Students will understand the interrelationship of California agriculture and society, and the interrelationship of agriculture with the economy, environment, and natural resources.

#### (Grades 11 – 12)

*Standard 5:* Students will show an understanding of concepts and function of marketing and sales in agriculture on both the local and international level. Students will design a marketing plan for an agricultural product or device and present it as a potential business.

#### Health Education (HE)

*Expectation 1.* Students will demonstrate ways in which they can enhance and maintain their health and well-being.

*Expectation 2.* Students will understand and demonstrate behaviors that prevent disease and speed recovery from illness.

*Expectation 4.* Students will understand and demonstrate how to play a positive, active role in promoting the health of their families.

*Expectation 5.* Students will understand and demonstrate how to promote positive health practices within the school and community.

*Expectation 9.* Students will identify information, products, and services that may be helpful or harmful to their health.

**Project Objectives:**

- Students understand basic nutrition principles and concepts.
- Students understand individual and societal health effects of unhealthy eating habits.
- Students analyze their own eating habits.
- Students have the ability to choose healthy eating habits.
- Students are aware of media pressures to adopt unhealthy eating habits.

**Student Expected Outcomes:**

- Students will be able to create a personal food pyramid reflecting their own eating habits.
- Students will be able to read and interpret food labels, identifying junk food.
- Students will be able to analyze a junk food advertisement, citing the target audience and two advertising techniques.
- Students will be able to create their own advertisement for an item of produce from the Organic Opportunities mini-farm.

## **Texts and Supplemental Instructional Materials:**

1. Bennet, B. and Van Vynct, V. (1997). *Dictionary of Healthful Food Terms*. Hauppauge, NY: Barron's Educational Series, Inc.
2. Garcia, D. (2004). *The Future of Food*. [Motion Picture] (Available from Lily Films at [TheFutureofFoods.com](http://TheFutureofFoods.com) )
3. Spurlock, Morgan (Writer/Producer). (2004). *Super Size Me*. [Motion Picture]

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
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## Organic Opportunities

### ***Foods/Nutrition Curriculum Outline***

1	<b>Introduction to Course</b>	<p>Briefly lay out the purpose of this course; explain goals and objectives of course. (20 min.)</p> <p>Have students generate a list of class rules. This can also include way to gain or loose participation points. When students have generated a list, lead a group discussion to consolidate and confirm the list as class rules or guidelines. (20 min)</p> <p>Give students a binder and have them label it. The binder should be organized so there are distinct sections for assignments and course materials. (10 min)</p>	<p>Butcher paper and pen for "rules" list</p> <p>Binder and labels</p>	Collect materials	
2 HE 1, 9 R 2.3, 2.4	<b>Nutrition Basics</b>	<p>Students will learn the basic concepts of nutrition through research, creating a poster, conducting a poster walk, and recording information in a "Little Book".</p> <p><b>Research</b> (15 minutes): Using the internet, the <i>Dictionary of Healthful Food Terms</i>, and other reference books pairs of students will research <b>one</b> of the following fundamental concepts in nutrition: (1) calories, (2) energy-yielding nutrients (lipids, carbohydrates, and proteins), (3) vitamins, (4) minerals, (5) water, (6) sodium, (7) fiber, (8) saturated fat, (9) unsaturated fat, (10) trans-fats, (11) sugar.</p>	<p><i>Dictionary of Healthful Food Terms</i> (Bennet and Van Vynct, 1997) and internet access</p>	Collect materials and reference books.	<p>Observations</p> <p>Poster</p>



Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
		<p>for comparison purposes.</p> <p><b>Food Pyramid Puzzle</b> Students cut out pre-printed strips with the names of food groups. They then assemble the food pyramid “puzzle style”. Teacher monitors and gives hints when needed. Students should be able to deduce the correct positioning of each food group based on the shape of the puzzle piece and knowledge that the completed puzzle should have a pyramid shape.</p> <p><b>Large-Format Food Pyramid</b> Create a large format food pyramid to hang in dining room. Each pair of students is responsible for one section of the pyramid. Student pairs write the name of the food group in large letters and draw pictures of representative foods from their food group.</p>	Butcher paper, markers, rulers, scissors	Make pre-printed strips of paper with names of food groups.	Observations
<p><b>4</b></p> <p>HE 1, 4, 5</p> <p>SA 2.6</p> <p>L/S 1.7</p>	<p><b>Serving Size Demonstration</b></p>	<p>Students are introduced to the concept of serving size as a prerequisite for understanding food labels and for gathering data about their own food habits.</p> <p><b>Prepare Serving Size Displays</b> Break students into four groups: (1) OJ, Milk, Water (2) Meat and Cheese, (3) Breads, (4) Fruits and Vegetables. Each group has an instruction sheet detailing the display they need to create. For example, group #1 would need to prepare a display for the following:</p>	Plates, variety of foods, measuring cups, measuring spoons, scale, cups	Assemble materials and food.	Observation and student notes

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		<ul style="list-style-type: none"> <li>•One serving of orange juice</li> <li>• The amount of sugar in a standard 20 ounce bottle of orange juice (determined by weight)</li> <li>•One serving of milk</li> <li>•Recommended daily water consumption</li> </ul> <p>Once the group has prepared the display, they practice a short talk to present their display to the rest of the group.</p> <p><b>Present Serving Size Displays</b> Each group presents their display to the rest of the class. Students take notes on the Serving Size Notetaker.</p>	Handout: Serving Size Notetaker		
<b>5</b> HE 1, 4, 5 9	<b>Food Labels</b>	<p>In this lesson students learn to read food labels.</p> <p><b>Hydrogenated Oil/Sodium Demonstration</b> Demonstrate the difference between regular oils and hydrogenated oils, using vegetable or canola oil and Crisco. Teacher can dramatize or “play up” how unhealthy Crisco is.</p> <p>Demonstrate the RDA of sodium by measuring the RDA of sodium into a cup.</p> <p>Students will now have two concrete, visual references that will serve as an entry point into food labels.</p> <p><b>Food Label Awareness Game</b> Break students into three groups. Each group will have a box of packaged food. Groups compete to</p>	<p>Crisco and vegetable oil</p> <p>Boxes with individually packaged food items</p> <p>Construction paper</p> <p>Markers</p> <p>Scissors</p> <p>Glue</p> <p>Internet access</p>	<p>Prepare boxes of food</p> <p>Assemble poster materials</p> <p>Sign-up for internet access</p>	<p>Finished bulletin board</p> <p>Observations of students working</p>

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		<p>find information on the food labels. For example, announce---“Arrange your food items from highest per serving amount of sodium to lowest per serving amount of sodium” or “Split your foods into two groups---those with hydrogenated oils and those without hydrogenated oils.” Teacher can keep track of points for fastest groups.</p> <p><b>Research for Giant Food Label</b> Assign three students to create a giant food label based on an actual junk food snack such as a bag of chips or cookies. The rest of the class becomes researchers investigating one or two items from this food label. Students then research the food label category, define it, and then make a short analysis statement about the nutritional value of the food item based on their category. For example, the student assigned the category “Calories” would write a definition of calorie. They would also write an analysis or evaluation statement about the caloric content of the food item. For example, “The amount of calories in one serving of this bag of chips is one tenth the total recommended daily caloric intake for a teenage girl. This is a high-calorie snack with very little nutrients.” Researchers print out their definitions and analysis/evaluation statements in large font (70+) and put a construction paper backing to create a border for the printed sheet.</p> <p><b>Create a Giant Food Label</b></p>			

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		<p>Students hang the giant food label and the definition/analysis statements. Using string, they connect the definition/analysis statements to the corresponding section of the giant food label. This creates a visually interesting and informative display which educates the entire school community about food labels.</p>			
<p><b>6</b> HE 1,9</p>	<p><b>Nutritional Analysis Game</b></p>	<p><b>Game Prep</b> Break into teams of three. Each team is given a box of 8-10 snack items. Half of the snack items are high-calorie, low nutrient density junk food items, such as candy bars or chips. The groups have twenty minutes to work amongst themselves to research the nutritional content of these snack items. For each snack item, groups should determine: (a) the calories per serving, (b) sodium content, (c) fat content, type of fat, and calories from fat, (d) vitamin content, (e) serving size, (f) mineral content. Students should use food labels and the internet to determine these values for each product. Once students have assembled the data above, they then determine whether or not the snack item counts as junk food.</p> <p><b>Captain Nutrition</b> “Captain Nutrition” now runs a game-show. Each round, a new member of each of the three teams is invited up to the contestant’s seats. “Captain Nutrition” then reveals the nutritional information of the various snack items <i>without</i> revealing the actual snack item. Based on the nutritional information presented, each contestant votes</p>	<p>Prepare a box with 8-10 different snack items, half of which are junk food.</p> <p>Sheet to use as cape for Captain Nutrition</p> <p>White board to tally scores</p>	<p>Assemble materials and Captain Nutrition costume</p>	<p>Participation in Nutritional Analysis Game</p>

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		whether or not the item is considered junk food or healthy snack. Once contestants have voted, Captain Nutrition reveals the snack and states whether the snack is healthy or junk food. The contest proceeds until all snack foods are covered.			
7 HE 1, 9	<b>Tracking Food Intake</b>	Since students will be completing this chart on their own, it is important to practice with them. Prepare one or two demonstration meals or snacks. Have the students examine the meals and then guess the serving sizes and food items represented in each snack or meal. To get an accurate gauge of students' true eating habits, stress how important it is that students record everything they consume over the course of the week. Discuss with the class the logistics of completing the form---when will the students fill it out? Where will they keep the form? How often will you check in with them about the form? Make daily announcements to remind students to record their food intake. Students use the first ten minutes of each class to fill in the forms.	Sample meals or snacks  Scale and measuring cups (for measuring serving sizes)  Food Intake Tracking Forms	Prepare sample meals  Photocopy Food Intake Tracking Forms	Completed forms
8 HE 1, 2	<b>Create Your Own Food Pyramid</b>	<b>Students Calculate Their Daily Food Intake According to Food Group</b> Based on the data collected on their individual Food Intake Tracking Forms, students will create their own "food pyramid" which reflects their actual eating habits, as opposed to their ideal consumption patterns. First, students tally their food intake for the previous week based on food groups and serving size. For example, a bagel	Food Intake Tally Sheet  Calculator	Photocopy Food Intake Tally Sheet	Completed Food Intake Sheet

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		<p>with cream cheese would count as three servings of white breads and one serving of dairy. The teacher should model the tallying procedure using the Food Intake Tally Sheet. Once students have tallied their food intake for the entire week, they simply need to use the calculators to calculate their average daily intake in each of the food groups. For example, 21 servings of bread a week represent an average of 3 servings per day. Students can then rank their food groups from highest to lowest consumption.</p> <p><b>Students Create Personal Food Pyramids</b> Next, students will actually create a graphic pyramid, based on the standard USDA food pyramid, which represents their true consumption. First, students take a full-page drawing of a standard USDA food pyramid. They cut out the different food groups in horizontal strips. The food groups that are recommended for heavy consumption will be longer horizontal strips from the bottom of the pyramid. The food groups recommended for infrequent consumption will be represented by shorter strips from the top of the pyramid. Next, students will white out the names of the food groups on the horizontal strips. They will then write the name of the food group representing their lowest intake on the smallest strip, the name of the food group representing their second lowest intake on the next smallest strip, etc. When they have finished, they can create two pyramids by moving the food group</p>	<p>Scissors</p> <p>Full page food pyramids</p> <p>White out</p> <p>Markers</p> <p>Tape/Glue</p>	<p>Photocopy full page food pyramids</p>	<p>Completed student food pyramids</p>

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		<p>strips around. First, they can rebuild a pyramid shape. This pyramid would represent their actual food consumption, visually showing which food groups they consume the least to most. Students should photocopy this food group. Next, they should rearrange their pyramid using the standard USDA food pyramid as a reference. This time students should create a “pyramid” maintaining the vertical positioning of the USDA food groups without worrying about the horizontal length of the food group strips or worrying about the overall shape of the “pyramid”. For example, refined sugars appears at the top of the USDA food pyramid. Students should maintain this same vertical position for their ”refined sugars” strip, even if in their food pyramid this strip is one of the longest. Creating a “pyramid” in this manner will highlight the mismatch between a student’s actual eating practices and USDA recommended daily intake.</p>			

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<b>9</b> W 1.1, 1.2, 1.9	<b>My Food Pyramid Essay</b>	Students will write an essay based on the food pyramid activities of the previous days. Students should use the five paragraph essay format. The body paragraphs should cover the following information: (1) How the students tracked their food intake, (2) how their personal food pyramid differs from the recommended food pyramid, (3) specific steps students could take to improve their nutrition.	Computer lab access  Essay rubrics	Reserve computer lab	Essay rubric
<b>10</b> HE 1,2, 4, 5, 9	<b>Super Size Me</b>	Students view the video Super Size Me and take notes on the following categories: (1) national statistics about health effects of poor nutrition, (2) ways that fast food companies target children and money spent on advertising, (3) specific health effects of the all-McDonald's diet on the protagonist. After students watch the movie, lead students in a discussion of the notes. Also, discuss ways in which Life Learning Academy seeks to counteract the pervasive messages influencing students to adopt poor nutrition habits.	VCR/Television  Super Size Me Videotape	Reserve VCR	Student Notes

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<b>11</b>  HE 1,9  A 1	<b>Analyzing Advertising</b>	<p>In this lesson, students are taught vocabulary to describe basic advertising strategies. They then use this vocabulary to analyze one food advertisement.</p> <p><b>Discussion</b>            Teacher leads students brainstorming specific food advertising campaign which they recall. For example, the Mean Joe Green and the little kid Coke TV commercial. After the brainstorm discuss food advertising in general. Analyze the list generated during the brainstorm. How many of these are for junk-food or high-sugar foods? Which kinds of advertisements are these (TV, radio, print, billboard, etc.)? How were students exposed to these advertisements (Saturday morning cartoons, internet, etc?) Teacher can also share statistics about the number of advertising messages children receive daily and yearly.</p> <p><b>Model</b>            Teacher models how to complete an advertising analysis poster using the assignment sheet, the advertising strategies sheet, and an example advertisement.</p> <p><b>Pair Work</b>            In pairs, students analyze one advertisement and complete an advertisement analysis poster.</p> <p><b>Poster Walk</b>            The class completes a poster walk. In the first</p>	Ten different print advertisements related to food.  Poster paper  Tape  Markers  Advertising analysis assignment sheet	Find example ads  Photocopy handouts	Poster rubric  Student observations

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L/S 1.7, 1.9 S/A 2.6		round, one student in each pair becomes the presenter, the other student becomes the walker. The walkers spend one minute at each poster listening to presentation by the presenters. After all walkers visited all posters, the walkers and presenters exchange roles.			
<b>12</b> A 5 L/S 1.7, 1.9 HE 4, 5	<b>Create an Advertising Video</b>	<p>In this lesson, students will apply their knowledge of advertising techniques by creating a 30 second video advertisement for a nutritious, fresh produce item.</p> <p>Divide students into groups of 3-4. Each group chooses one of the produce items. Next, each group brainstorms and then writes a short script. Using the script, students construct a storyboard which outlines the video and includes camera directions. Students then assemble props or scenery items. Finally, each group rehearses their short video. A teacher appointed student camera person can film each group once they have completed rehearsals. If you film each commercial straight through, you can skip the editing. We were able to start and complete this project in one two-hour session with 14 students divided into 4 groups. The videos were rough quality. For a more polished product plan on spending two to four more hours editing with the students.</p> <p>Having popcorn for the video viewing encourages students to buy into the class.</p>	<p>Video Camera</p> <p>VCR</p> <p>Four fresh vegetables or fruit</p> <p>Advertising strategies handout</p> <p>Poster paper, markers, tape</p> <p>Popcorn</p>	Sign up for audiovisual equipment	Video Rubric

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<b>13</b> L/S 1.7, 1.9	<b>Portfolio and Open Classroom</b>	As a culminating project, students assemble their best work into a portfolio. In groups, they also create a poster or Power Point presentation representing one area of learning covered in the class. Invite guests from outside the class and outside the school community to come and review student portfolios and posters. Prepare and share nutritious snacks. Assign student roles such as greeters, tour guides, snack servers, and presenters.	Poster paper/Markers  Computers to show Power Point presentations  Student nametags	Invitations to guests  Prepare snacks  Photocopy guest feedback forms	Guest feedback form  Portfolio rubrics

# Organic Opportunities Math/Construction Curriculum

## Overview:

Designing and constructing a real-world structure is an opportunity to show students the connections between what is taught in the classrooms and the kind of real-world work they see outside academics. In making these connections, students become motivated problem-solvers who can work effectively in a group setting to complete complex projects.

The objectives of the project are to teach students: (1) how to plan a project from initial idea conception through final construction; (2) how to take advantage of a team's multiple skills to better complete a project; (3) how their research, writing, communication, and mathematics skills can be applied in a real-world situation; and (4) how to build a wood-frame structure similar to those they see in their everyday lives.

During the project students will have the opportunity to: (1) do research into greenhouse function and design; (2) visit working greenhouse sites; (3) develop multiple alternative conceptual design ideas; (4) prepare cost estimates for the alternate designs and select the optimum design; (5) make presentations of their design and construction proposal to the Life Learning Academy (LLA) staff for approval; (6) procure construction materials; (7) and construct the greenhouse structure.

The project consists of lessons about: (1) internet research; (2) greenhouse functions and design; (3) design and construction drawing preparation; (4) proposal preparation and presentation; (5) material procurement; and (6) wood frame building construction methods.

NOTE: This curriculum has been written based on Life Learning Academy's (LLA's) experience building a greenhouse. However, this curriculum would be equally suitable for guiding the construction of any kind structure; the concepts of design, planning, and construction described here are universal for this kind of project.

## Educational Standards Addressed:

### California State Mathematics Standards

1. Students solve problems involving the perimeter and area of common geometric figures. CA State [4], Geometry, Grades 8-12, 8.0
2. Students compute areas of polygons, including rectangles and triangles. CA State [4], Geometry, Grades 8-12, 10.0
3. Students determine how changes in dimensions affect the perimeter and area of common geometric figures. CA State [4], Geometry, Grades 8-12, 11.0
4. Students use the Pythagorean Theorem to determine distance and find missing lengths of sides of right triangles. CA State [4], Geometry, Grades 8-12, 15.0

5. Students use trigonometric functions to solve for an unknown length of a side of a right triangle, given an angle and a length of a side. CA State [4], Geometry, Grades 8-12, 19.0

### California State Challenge (Applied Learning) Standards

6. Students will understand how to solve problems through a project design process. Students will design a product, service, or system to meet an identified need. CA State [5], 1, p. AL-10
7. Students will understand how to solve problems through planning and organization. Students will plan and organize an activity. CA State [5], 2, p. AL-10
8. Students will understand how to solve problems through meeting client needs. Students will conduct a commissioned project. CA State [5], 4, p. AL-10
9. Students will understand how to apply communication skills and techniques. Students will demonstrate ability to communicate orally and in writing. CA State [5], 6, p. AL-11
10. Students will understand information technology tools and techniques. Students will use information technology to collect, analyze, organize, and evaluate information from a variety of sources. CA State [5], 7, p. AL-11
11. Students will understand the importance of teamwork. Students will work on teams to achieve project objective. CA State [5], 8, p. AL-11
12. Students will be aware of safety considerations in the work place and classroom. Students will use tools and operate equipment safely following established safety procedures. CA State [5], 10, p. AL-12

### Goals and Rationale:

- Students will develop critical thinking skills when assessing usefulness of information gained in research.
- Students will become better at developing effective information research.
- Students will apply, and thus deepen their understanding of, mathematical concepts of scale, proportion, area, perimeter, and angles.
- Students develop ability to work and communicate effectively in small workgroups.
- Students will become more comfortable making oral presentations of their ideas.
- Students will gain confidence in the value of their ideas.

### Project Objectives:

- Students conduct Internet and library research.

- Students will prepare for field trips by preparing appropriate questions that guide their field trip activities.
- Students will prepare greenhouse design drawings, including plan and elevation views.
- Students will build scale models that effectively show off their design ideas.
- Students will prepare concise, clear cost estimates.
- Students will prepare and present a proposal to gain approval to build the greenhouse.
- Students will learn basic wood-frame building construction skills, including measurement, tool use, material identification, safety, and teamwork.

### **Key Assignments:**

An adult experienced in wood-frame construction needs to be involved in the project. This person can be the teacher or could be a volunteer that participates from time to time to help guide the development and construction. This person is called “Construction Expert” in the Project Outline below.

One or more students (“Project Historian”) who enjoy writing and keeping notes should be assigned to prepare and maintain the “Project History.”

### **History of Project Development:**

The Organic Opportunities mini-farm development plan at LLA included a greenhouse. The teacher in charge of Organic Opportunities came to our Applied Mathematics class and asked if we’d be interested in designing and building the greenhouse. The Applied Mathematics class agreed to take this project on as the primary focus of our work during the 2004-2005 school year.

### **Timeframe Notes:**

The project was spread over two semesters. The design and procurement work was done primarily in the first (Fall) semester. The construction work was done during the second (Spring) semester. This curriculum fills approximately one-half of the class minutes available in a two-semester timeframe.

The curriculum is broken up into “units”. Each unit covers various lengths of time, often more than one class period. Approximate times are shown in the Content Outline below.

### **Texts and Supplemental Instructional Materials:**

1. *Greenhouses – Planning, Installing, & Using*, by Ortho Books, 1991
2. *Start-to-Finish Sheds & Gazebos – Planning, Building, Personalizing*, by Ortho Books, 2003
3. Set of building construction drawings (see Design Drawing Unit below)
4. Ong, F., B. Lucia, and K. Yee, *Mathematics Content Standards for California Public Schools*, 1999, California Department of Education: Sacramento, CA.
5. Almeida, C., *Superintendent’s Challenge Initiative: Applied Learning Standards*, 1995, California Department of Education: Sacramento, CA.

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
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## Organic Opportunities

### ***Math/Construction Outline - Conceptual Design Unit***

<b>1</b> (60 min)  [7,8]	<b>During this lesson, students meet with the client to determine desired greenhouse uses.</b>	<p>Introduce project by meeting with the client (Organic Opportunities Project Coordinator) to discuss client needs, including intended uses of the greenhouse, space needs, etc. Visit the intended construction site. (30 min.)</p> <p>Following meeting, hold a debriefing discussion with students to see what they all understand the client wants. Then ask students to write a summary of what client wants. (30 min.)</p>	Writing paper and pencils.	Discuss with students the purpose of this meeting.	Student writing summarizing the meeting with client.
<b>2</b> (120 min+)  [7,10]	<b>During this lesson, students conduct greenhouse function and design research in library, on the internet, and on field trips.</b>	<p>Students conduct research to find information concerning greenhouse functions and designs. Sources to be used include library, internet, and field trips (to existing greenhouse facilities). (120 min or more)</p>	<p>Greenhouse design and construction books.</p> <p>Internet-connected computer(s) and printer(s).</p>	<p>Prepare guiding questions that prompt effective research.</p> <p>Contact existing greenhouse facility(s) and arrange site visits. Help students prepare for</p>	Student writing describing the results of their research and a summary of their field trip experiences.

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
				visit by asking them to prepare questions for greenhouse operators ahead of visit.	
<b>3</b> (120 min)  [6,7]	<b>During this lesson, students prepare a conceptual design based on research and then discuss their designs with the client.</b>	<p>Introduce the difference between conceptual sketches and final drawings. Discuss with students the purpose of each. (15 min.)</p> <p>Show one or more examples of building design sketches and final drawings. (15 min.)</p> <p>Remind students of their research findings; then ask each group of students to prepare a sketch of the greenhouse floor plan. (45 min.)</p> <p>Class meets with client and Construction Expert to discuss their research results, design ideas, and conceptual designs. (45 min.)</p>	<p>Drawing paper, pencils, rulers, and markers.</p> <p>Research materials.</p>	<p>If possible, contact an architect ahead of the project and obtain copies of a building design sketch and the subsequent final drawing. If not available, obtain them from the internet.</p> <p>Construction Expert should be on hand at this meeting.</p>	<p>Student floor plan sketches that meet client needs.</p>
<b>4</b>	<b>Project history</b>	Have Project Historians write a summary of what	Writing		Student writing;

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
(30 min) [9]	<b>is updated.</b>	<p>happened during the conceptual design phase. This writing should include a brief description of all the steps students took to reach their final concepts. It should also include any notable events that occurred, exceptional efforts by students, and time frame.</p> <p>Ask the Project Historians to present their notes to the class for discussion and amendment if necessary. (30 min.)</p>	materials or word processing computer (optional).		class participation in review of history notes.

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
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### ***Math/Construction Outline - Design Drawing Unit***

<b>1</b> (60 min)  [6,7]	<b>In this lesson, students will learn what scale means and how to use it to size the final design drawing.</b>	<p>Begin with a scale drawing of a large object, like a building. Make sure the scale is written somewhere on the drawing or object. As a whole class, study the drawing for a bit and then discuss what the students see. At some point in the conversation, ask them: “How big is this building, in the real world?” Let students explore the drawing to see what they can figure out on their own.</p> <p>Then ask the students: “Why does this drawing look like the real thing?” Let students discuss this for a bit, noting their ideas on the class board.</p> <p>By the end of these discussions, students should be aware of the scale numbers on the drawing, and have some sense of what, say, “1inch equals 10feet” means.</p> <p>Finally, ask students to draw a simple floor plan (say a garage building) with dimensions similar to those expected for the greenhouse. Make sure that at the beginning of this segment students share their ideas about what the best scale might be. (60 min.)</p>	<p>Set of scale building construction drawings, including a site plan, floor plan and elevations.</p> <p>Drawing paper and pencils and 12-inch rulers.</p>	<p>Scale building construction drawings can usually be obtained from an architect or from a homeowner that has had major remodeling done on their house. If these are unavailable, then there are textbooks available that contain examples.</p>	<p>Students’ simple floor plan scale drawings.</p>
<b>2</b>	<b>In this lesson,</b>	Place a scale drawing on each team’s table. At the	A sample scale	Draw a rough	Student drawings.

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
(60 min) [6,7]	<b>students learn how to use drafting tools to draw precise building design drawings.</b>	<p>same time, put a hand-drawn sketch of a simple floor plan on the class board. Ask the students: “What qualities does the scale drawing have that the sketch doesn’t have?” Write their responses on the board. Their list should eventually define a precise scale drawing (precise dimensions, lots of labels, perpendicular and parallel lines, and borders.</p> <p>Hand out drafting boards, T-squares, plastic triangles, and rulers. Demonstrate to each team how the tools are used to create parallel and perpendicular lines common to a floor plan’s scale drawing.</p> <p>Finally ask students to use the drafting tools to draw a precise scale drawing of the floor plan they prepared in lesson #1. (60 min.)</p>	<p>drawing for each team; small drafting boards (or a smooth surface large enough to tape the drawing paper on); T-squares; plastic right triangles; 12-inch rulers; drawing paper.</p> <p>NOTE: Use of T-squares requires a drawing board. If these are unavailable, then students will have to use rulers. This will slow the final drawing work somewhat.</p>	<p>sketch of a floor plan on the class board. Use just enough labeling so that students know what it is.</p>	
<b>3</b> (60 min) [1,2,6,7,9]	<b>In this lesson, students learn about purposes of site plan, floor plan, and</b>	<p>Review a typical set of building construction scale drawings that include a site plan, floor plan and elevations. Ask students to write how they think a builder uses the site plan, floor plan, and elevations.</p>	<p>Set of building construction drawings (see lesson #1 above).</p>	<p>Construction Expert should be on hand for this meeting.</p>	<p>Student writing and drawings.</p>

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
	<b>elevation perspectives.</b>	<p>Ask students to review their work on the greenhouse conceptual sketches. Then ask them to prepare sketches of a greenhouse site plan, floor plan and elevations. (These sketches don't require the application of a precise scale at this point.)</p> <p>Students discuss their design ideas with Construction Expert to maintain feasibility. (60 min.)</p>	Writing and drawing paper, pencils, and rulers.		
<b>4</b> (120 min)  [1,2,3,4,6,7,11]	<b>In this lesson, student teams prepare final greenhouse design site plan, floor plan, and elevation drawings.</b>	<p>Briefly discuss with students any questions they have about site plans, floor plans, and elevations. Then ask students to share the ideas they've come up with for the greenhouse design developed in lesson #3 above. Provide time here to let students revise their sketches of the greenhouse if necessary.</p> <p>Discuss students' ideas for what they think the scale of the final drawings should be. (Make sure each <u>team</u> of students agrees on one scale.)</p> <p>Ask student teams to prepare a final set of greenhouse site plan, floor plan, and elevation drawings using their agreed-upon scale.</p> <p>Students present their final designs to the Construction Expert for feasibility approval. (120 min. or more)</p>	<p>Drawing paper, pencils, rulers Optional equipment: drawing boards, T-squares, drafting triangles</p> <p>NOTE: Use of T-squares requires a drawing board. If these are unavailable, then students will have to use rulers. This will</p>	<p>Teacher should be familiar with the use of drafting equipment to prepare two-dimensional drawings.</p> <p>Construction Expert should be on hand for this meeting.</p>	Student final drawings.

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
			slow the final drawing work somewhat.		
<b>5</b> (30 min)  [9]	<b>Project history is updated.</b>	<p>Have Project Historians write a summary of what happened during the design drawing phase. This writing should include a brief description of all the steps students took to complete their drawings. It should also include any notable events that occurred, exceptional efforts by students, and time frame.</p> <p>Ask the Project Historians to present their notes to the class for discussion and amendment if necessary. (30 min.)</p>	Writing materials or word processing computer (optional).		Student writing; class participation in review of history notes.

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
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### ***Math/Construction Outline - Cost Analysis Unit***

<b>1</b> (60 min+)  [6,7,9, 11]	<b>In this lesson, students develop alternate design scenarios based on variations in design and materials called for in student designs.</b>	<p>Ask students to present their designs to the class. After all the design drawings have been presented, ask students to develop at least two overall designs that they agree are feasible. Alternatives could include variation of size, shape, and materials.</p> <p>Ask students to write a summary in their own words what the alternative designs consist of, making sure to highlight the differences.</p> <p>If this discussion leads to an agreement that the designs developed in the Design Drawing unit require revision, then the revisions must be done now. (60 min or more)</p>	Students' final design drawings.	Have students' final drawings available for discussion.	Student discussion participation; student writing.
<b>2</b> (90 min+)  [1,2,3,4,5, 6,7,11]	<b>In this lesson, students develop comprehensive lists of materials required to build the greenhouse for each design scenario developed in lesson # 1.</b>	<p>Student teams develop material quantity lists (lumber, siding, hardware) for the alternative designs. These lists must be comprehensive enough so that reasonably accurate cost estimates can be made.</p> <p>Students discuss their material lists with the Construction Expert to make sure they are complete. (90 min. or more)</p>	Student design drawings for the selected alternatives; paper, pencils, calculators.	Teacher needs some familiarity with readily available building materials (lumber sizes, siding types and sizes, necessary	Student participation in discussion; materials lists.

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
				hardware).  Construction Expert should be on hand for this meeting.	
<b>3</b> (60 min+) [6,7,9]	<b>In this lesson, students request and obtain bids from material suppliers for each design scenario.</b>	Students, using the materials lists from lesson #2, call local materials suppliers and/or use the internet to obtain cost bids for the required materials for each alternate design. (60 min. or more)	Paper, pencils, yellow pages, telephone, internet access (optional)	Students will need access to phones and/or the internet.	Cost information obtained from suppliers.
<b>4</b> (90 min) [6,7]	<b>In this lesson, students develop cost summaries for each design scenario.</b>	Discuss with students what a thorough cost summary should look like. Keep track of their ideas on class board. Agree on a final format.  Students prepare final cost summaries for each design scenario based on their material lists and cost quotes obtained from suppliers. (90 min.)	Writing materials or word processing computer (optional)	If teacher wants to speed this work along, a formatted spreadsheet could be prepared ahead of time.	Students' final cost summaries for each design alternative.
<b>5</b> (60 min) [6,7,9, 11]	<b>In this lesson, students select the preferred design based on cost and feasibility.</b>	Students discuss their design alternatives and cost estimates. During this discussion students have to select the design alternative that best balances meeting the needs of the Organic Opportunity Project while minimizing costs.	Final drawings, cost summaries, writing materials.	Construction Expert should be on hand for this meeting.	Student participation in discussion.

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
		<p>During this lesson, students may decide to modify a design alternative to take advantage of information gained during the cost analysis phase. This will have to be reflected in the final design documents. Revision of drawings and cost estimates will then be required.</p> <p>Students present their design decisions to the Construction Expert, explaining their reasoning. (60 min. or more)</p>			
<p><b>6</b> (30 min)  [9]</p>	<p><b>Project history is updated.</b></p>	<p>Have Project Historians write a summary of what happened during the conceptual design phase. This writing should include a brief description of all the steps students took to reach their final concepts. It should also include any notable events that occurred, exceptional efforts by students, and time frame.</p> <p>Ask the Project Historians to present their notes to the class for discussion and amendment if necessary. (30 min.)</p>	<p>Writing materials or word processing computer (optional).</p>		<p>Student writing; class participation in review of history notes.</p>

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
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### ***Math/Construction Outline - Project Construction Budget Proposal Unit***

<b>1</b> (30 min)  [6,7]	<b>In this lesson, students develop a projected timeline for the greenhouse construction.</b>	<p>Students discuss and develop preliminary ideas of what tasks will be involved in the project's construction and how long each will take.</p> <p>A draft timeline is prepared.</p> <p>NOTE: Its expected that this timeline will require adjustment throughout the construction period as circumstances change. (30 min.)</p>	Writing materials or word processing computer (optional).	Construction Expert should be on hand for this meeting.	Student participation in discussion; student writing.
<b>2</b> (30 min)  [6,7]	<b>In this lesson, students develop a projected schedule of expenditures.</b>	<p>Using their preliminary construction timeline and material cost estimates (from the previous unit), students discuss and develop a projected schedule of expenditures for the entire course of the construction period.</p> <p>NOTE: Its expected that this expenditure schedule will require adjustment throughout the construction period as circumstances change. (30 min.)</p>	Writing materials or word processing computer (optional).		Student participation in discussion; student writing.
<b>3</b> (120 min+)  [6,7,9, 11]	<b>In this lesson, students prepare a formal presentation of their proposal</b>	Students pull together all the information they've developed to date, including research results, design details, project construction timeline, projected schedule of construction expenditures, alternate designs considered, and the written project history. The students discuss	All student work developed on the project to this date.	Teacher may want to be prepared to offer use of PowerPoint software	Student participation; student presentation materials.

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
	<b>for building the greenhouse</b>	<p>how best to present this information to the client and the LLA administration to gain approval for construction.</p> <p>Students prepare the final presentation materials and train the presenters. (120 min. or more)</p>		and/or video equipment in case students decide to use these forms of presentation.	
<b>4</b> (60 min) [6,7,9, 11]	<b>In this lesson, students make an oral presentation of their proposal to the LLA administration and the Organic Opportunities team for approval to begin construction.</b>	<p>Students practice their presentation.</p> <p>Students present their recommendations to the LLA administration and the Organic Opportunities team. (60 min. or more)</p>	Students' work prepared for display.		Student presentation participation.
<b>5</b> (30 min) [9]	<b>Project history is updated.</b>	Have Project Historians write a summary of what happened during the budget proposal phase. This writing should include a brief description of all the steps students took to reach the final budget. It should also include any notable events that occurred, exceptional efforts by students, and time frame.	Writing materials or word processing computer (optional).		Student writing; class participation in review of history notes.

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
		Ask the Project Historians to present their notes to the class for discussion and amendment if necessary. (30 min.)			

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
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### ***Math/Construction Outline - Procurement and Construction Unit***

<b>1</b> (30 min)  [7,9]	<b>Schedule of procurement</b>	Students set up scheduled deliveries of materials with suppliers. (30 min.)	Telephone.		Student participation.
<b>2</b> (3 hrs+)  [1,6,7, 12]	<b>Prepare site for construction</b>	<p>Students use their final site plan to locate the construction site. Students will need to locate boundaries of the greenhouse using measuring tapes to measure from existing landmarks. They can lay it out on the ground using wooden stakes and string.</p> <p><u>Optional activity:</u> Laying out boundary lines will likely require 90-degree corners. This can be facilitated by building a right triangle using three strips of wood measuring 3-ft., 4-ft., and 5-ft.</p> <p>Once boundary lines are set, the ground must be leveled where the foundation material will be laid. Depending on the existing condition of the site, this work could take several hours. (3 hours or more)</p>	Measuring tapes, wooden stakes, hammers, string, shovels, wheelbarrow (optional), and final site plan.	Teacher can visit the site ahead of time to make sure no significant obstacles exist that would prevent accurate measurement.	Student participation; accuracy of boundary lines.
<b>3</b> (3 hrs+)	<b>Lay out and build foundation</b>	Students set foundation material in accordance with the boundary lines they set.	Foundation materials, work	Construction Expert should	Student participation,

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
[1,6,7, 12]		If wood beams are used as the foundation material, then the installation will take roughly 3 hours. Using concrete or concrete blocks will take substantially longer. (3 hours of more)	gloves, tools appropriate for installing the foundation material used, and final design drawings.	be on site or consulted ahead of time regarding methods for setting the foundation.	quality of completed foundation layout.
<b>4</b> (9 hrs+)	<b>Construct wall frames</b>	Students build and install wood wall frames in accordance with their design drawings.  For safety reasons, this activity should not be conducted without the presence of the Construction Expert. (9 hours or more)	Wall lumber, step ladders, work gloves, hammers, nails, measuring tapes, and final design drawings.	Construction Expert must be on site during this construction phase.	Student participation, quality of completed wall frames.
[7,11, 12]					
<b>5</b> (6 hrs+)	<b>Construct roof</b>	Students build and install wood roof frames in accordance with their design drawings.  For safety reasons, this activity should not be conducted without the presence of the Construction Expert. (6 hours or more)	Roof lumber, step ladders, work gloves, hammers, nails, measuring tapes, and final design drawings.	Construction Expert must be on site during this construction phase.	Student participation, quality of completed roof frames.
[7,11, 12]					
<b>6</b> (9 hrs+)	<b>Construct doors and vents</b>	Students build and install wood door and vent frames in accordance with their design drawings. (9 hours or more)	Door and vent lumber, step ladders, work gloves, hammers, nails, vent and door	Construction Expert should be on site for this work or consulted ahead of time.	Student participation, quality of installed door and vent frames.
[7,11, 12]					

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
			hardware, measuring tapes, and final design drawings.		
<b>7</b> (9 hrs)  [7,11, 12]	<b>Attach exterior covering material to roof and walls</b>	Students attach the exterior covering material to the greenhouse walls, roof, doors and vents.  For safety reasons, this activity should not be conducted without the presence of the Construction Expert. (9 hours)	Siding, work gloves, hammers, nails, measuring tapes, and final design drawings.	Construction Expert must be on site for this work.	Student participation, quality of installed exterior material.
<b>8</b> (4 hrs)  [7,11, 12]	<b>Construct work benches</b>	Students build and install wood work benches in accordance with their design drawings. (4 hours)	Bench lumber, work gloves, hammers, nails, measuring tapes, and final design drawings.	Construction Expert should be on site for this work or consulted ahead of time.	Student participation, quality of completed benches.
<b>9</b> (30 min)  [9]	<b>Project history is finished.</b>	Have Project Historians write a summary of what happened during the construction phase. This writing should include a brief description of all the steps students took to complete the project construction. It should also include any notable events that occurred, exceptional efforts by students, and time frame.  Ask the Project Historians to present their notes	Writing materials or word processing computer (optional).		Student writing; class participation in review of history notes.

Lesson # Standard #	Content Outline	Teaching Sequence	Equipment and Materials	Preparation	Assessment
		to the class for discussion and amendment if necessary. (30 min.)			
9 (4 hrs) [7,9,11]	<b>Presentation of completed greenhouse to the public.</b>	Students orchestrate and carry out a dedication ceremony to celebrate the project completion. The ceremony should include recognition of all participants, presentation of the Project History, and a tour of the greenhouse. (4 hours)	Invitations Envelopes Stamps	List of invitees	Observation of presentations

# Appendix: Garden/Entrepreneurship Class Handouts and Lecture Notes

## Toolkit: Broadcasting Seeds in Seedling Trays

**Materials:** Shovel, compost/potting soil, seed packet, empty seedling tray, pencil, strip of venetian blind for a sign, trowel

**Steps:**

- (1) Fill seedling tray **most of the way** with compost/potting soil. Smooth out dirt so that it is level.
- (2) **Broadcast**, or scatter, seeds across seedling tray.
- (3) Cover entire seedling tray with a thin layer of compost/potting soil so that seeds are covered.
- (4) Write a sign on a strip of venetian blind. Include name of **plant, date,** and your **name**.
- (5) Place sign in seedling tray.
- (6) Place seedling tray in mini-greenhouse
- (7) Water

Name: \_\_\_\_\_

## **Letter to the Teacher**

Write a letter to your teacher telling them about your previous experience with gardening and marketing (business). Include gardening experiences with friends or relatives; have you helped them in their garden? What is your business experience? Is someone close to you a business owner? What have you noticed that helps them or someone else be a good business owner? What would you like to learn about gardening or business? What do you know about Organic Opportunities (our school mini-farm)?

We want to learn more about your experiences so that we can design the class to best meet your needs....let us know where you are and where you're coming from!

## Marketing Quiz

Name: \_\_\_\_\_

1. Write a one-sentence definition of **marketing**. Use the words profit and satisfaction.
2. Describe how you figure out how to set a **price** for your product. Use the words high and low.
3. Describe the main two things necessary for developing a **product**. Use the phrase customer need and produce.
4. What two parts make up **publicity**?
5. Describe how a business should choose a location. What are the necessary elements of a good location?

## Farmer's Market Field Trip Worksheet

Name: \_\_\_\_\_

1. List the names of the stands that sell products that we could also sell (fruits, vegetables, herbs, flowers):

2. Pick two of these stands and learn more:

	Stand Name		Stand Name
List 4 prices of crops that we grow or could grow.	1.		1.
	2.		2.
	3.		3.
	4.		4.

3. Pick one crop that you like and describe how it is marketed using the Four P's (Product, Place, Price, and Promotion). Here are the NFTE definitions to help you:

My chosen crop is: \_\_\_\_\_

I found it at this stand: \_\_\_\_\_

Product:

Price:

Place:

Promotion:

4. **Brainstorm:** Now that you've spent some time in the Ferry Building, what ideas do you have for Organic Opportunities?

What should we sell?

How could we display our produce so it looks good and people will want to buy it?

# Organic Opportunities **MARKETING** Skit Rubric

*Your group will present a skit about the first day of our farm stand that integrates what you have learned about marketing and the marketing plan for Organic Opportunities.*

**Teamwork** (5 points):   Balanced participation and cooperation while presenting skit.

**Organization** (5 points): Characters are introduced and roles are clearly defined and it is clear that the actors are ready and prepared. Characters are interesting and entertaining.

**Content - Goals and Marketing** (10 points):

The history and goals of Organic Opportunities (OO) are clearly stated. It is clear that OO is funded by a USDA grant, run by LLA students and a service to the Treasure Island community. Marketing is clearly defined. Characters show clearly why marketing is important to the OO business. Characters clearly state and summarize the OO marketing plan.

**Content - Four Ps** (20 points):

Each character defined one of the Four Ps (Product, Place, Price, and Promotion) as it relates to OO. Each "P" is addressed individually by a separate character.

**Product** (addressed by \_\_\_\_\_):           \_\_\_\_\_/5 points

**Place** (addressed by \_\_\_\_\_):           \_\_\_\_\_/5 points

**Price** (addressed by \_\_\_\_\_):           \_\_\_\_\_/5 points

**Promotion** (addressed by \_\_\_\_\_):       \_\_\_\_\_/ 5points

**Delivery** (5 points):   Use of volume, pace, projection and eye contact. Appears comfortable in stance and facial expression.

## Organic Opportunities Survey

Hello! We are students from the Life Learning Academy, a charter high school here on Treasure Island. Our school currently manages and operates Cross Roads Café and we are planning to expand to offer fresh produce, flowers and herbs.

Do you have a few minutes to answer some short questions? Your input will be very useful in helping us develop our marketing plan and offer the best possible service to you! Thank you for your time!

---

1. How often do you purchase fresh vegetables, fruits and herbs?

Daily                      Twice-weekly                      Weekly                      Monthly

Other: \_\_\_\_\_

2. Where do you usually buy fresh produce?

Location: \_\_\_\_\_ Name of store: \_\_\_\_\_

3. What kinds of vegetables, fruits and herbs do you currently purchase on a regular basis?

\_\_\_\_\_  
\_\_\_\_\_

4. If we offered fresh vegetables, fruits and herbs for sale on the island would you purchase them?

Yes

No

Why? \_\_\_\_\_

Why not? \_\_\_\_\_

5. Please circle the following vegetables, fruits and herbs that you would be interested in purchasing from Organic Opportunities on Treasure Island:

Tomatoes	Green beans	Broccoli	Corn
Cilantro	Basil	Mint	Rosemary
Strawberries	Peppers	Eggplant	Carrots
Squash	Chard	Beets	Apples
Cucumbers	Raspberries	Lettuce	Onions

6. Which hours of operation would be most convenient for you to shop at Organic Opportunities?

Weekday mornings

Weekday afternoons

Weekends

## **Market Research Persuasive Essay**

Draft due: \_\_\_\_\_

Final draft due: \_\_\_\_\_

Small business owners often have to convince others about their business; you may have to convince a banker to give you a loan, or relatives to lend you start-up money. Organic Opportunities is currently trying to convince the Treasure Island Development Authority to let us use their kiosk for free. To do this we must know how to use our market research results, in this case surveys, to persuade others of your views. This form of writing is called a persuasive essay.

**Write a persuasive essay that answers the question: "Based on the market research, will Organic Opportunities be a successful business on Treasure Island?"**

Requirements:

- (5 points) The introduction should include:
  1. The purpose of the survey
  2. When the survey was conducted
  3. Who participated in the survey
  4. The total number of participants surveyed
  
- (20 points) A paragraph for each of the "Four Ps" (Product, Price, Place, Promotion) that uses survey data to persuade the reader.
  
- (10 points) Use results from at least four survey questions to make your argument.
  
- (5 points) Make a clear conclusion about whether Organic Opportunities will be successful on Treasure Island based on the market research.
  
- (5 points) There are no spelling or grammar errors.
  
- (5 points) The essay is doubled-spaced in Times New Roman font.

## **Garden Tour Assignment**

For your final project, you will prepare and give a garden tour. You will give the tour to your classmates on \_\_\_\_\_. You may also have a chance to give garden tours during the *Open Garden and Greenhouse Inauguration* on \_\_\_\_\_. Your garden tour should include the following 8 sections detailed below. For each section, prepare a notecard. You will use the notecards when you give your actual tour.

### **1. Introduction**

- \_\_\_welcome    \_\_\_your name
- \_\_\_how long you've been at LLA
- \_\_\_your gardening history
- \_\_\_what you are going to discuss on the garden tour

### **2. Layout**

- \_\_\_what are the different parts of the garden
- \_\_\_lettered beds    \_\_\_numbered beds
- \_\_\_ornamental beds    \_\_\_native plant section
- \_\_\_living classroom    \_\_\_sheds
- \_\_\_other parts

### **3. Context and History**

- \_\_\_local climate and growing seasons
- \_\_\_how long have we been developing the garden
- \_\_\_which parts were built first
- \_\_\_which parts were built most recently
- \_\_\_organic    \_\_\_local food movement
- \_\_\_USDA grant/Organic Opportunities

## Garden Tour Assignment (page 2)

### 4. Goals

- \_\_\_ expansion of garden into urban mini-farm
- \_\_\_ produce for school lunches
- \_\_\_ produce sales
- \_\_\_ nutrition education outreach

### 5. Crop Focus---*stop at one crop and explain how to grow it in depth, including:*

- \_\_\_ annual, biennial, perennial
- \_\_\_ plant family
- \_\_\_ when to plant      \_\_\_ direct seed or transplant
- \_\_\_ which part of the plant do we eat
- \_\_\_ maintenance      \_\_\_ when/how to harvest,
- \_\_\_ serving suggestions      \_\_\_ why I picked this crop

### 6. Personal Contribution ---*stop at a part of the garden you worked on, explain:*

- \_\_\_ what you did
- \_\_\_ how it contributes to the garden
- \_\_\_ what you learned or practiced

### 7. Conclusion

- \_\_\_ review talk      \_\_\_ thank the listeners
- \_\_\_ clincher/closing

## Garden Tour Rubric

Grader Name: \_\_\_\_\_ Title of Presentation: \_\_\_\_\_

Names of Presenters: \_\_\_\_\_

Category and Expectations	Score	Notes
<b>Content</b> •introduction___ •layout___ •context and history___ •goals___ •crop focus___ •personal contribution___ •skills___ •conclusion___	(1-10)	
<b>Organization</b> • introduction___ body___ conclusion___ •smooth transitions___ •presenter clearly “knew where he/she was going”___	(1-5)	
<b>Delivery</b> •loud ___ and clear enough___ •eye contact___facing audience___ •visuals used to reinforce talking points___	(1-5)	

# organic Opportunities Produce Sale

**Where:** Next to the Crossroad's Café across from the TI  
Marina

**When:** Fridays in July from 5-7 pm

**What:** Organically grown collard and mustard greens,  
flowers, green beans, flowers, Swiss chard, mint,  
lettuce, rosemary, zucchini, and (in late July)  
tomatoes. Availability dependent upon harvest.

## **GARDEN JOURNAL GUIDELINES**

Welcome to Life Learning Academy's Garden Journal. Like LLA's garden itself, this journal is an organic, ever-growing, ever-changing creation for and by the members of the LLA community. Use this journal to learn about the garden, to reflect on the garden, and to record your experience of the garden.

Here are some suggestions for entries:

- (1) Sketch a detail of something growing in the garden.
- (2) Sketch a bug, bird, or other creature living in the garden.
- (3) Write what you or your classmates accomplished in the garden today.
- (4) Write which plants in which beds are ready to harvest.
- (5) Write something you know about plants.
- (6) Draw a diagram showing the life cycle of a typical flowering plant.
- (7) Draw a diagram showing how to transplant a seedling.
- (8) Draw a diagram showing how to broadcast seeds.
- (9) Write a poem about something in the garden.
- (10) Write a riddle about the garden.
- (11) Write which plants in which beds just sprouted.
- (12) Compare the smells of three different flowers growing in the garden.
- (13) Write the names of flowers blooming right now.
- (14) Write the names of flowers not blooming right now.
- (15) Record the names of seedlings in the mini-greenhouses.
- (16) Write a suggestion for one way to improve the garden.
- (17) Complete one or more of the following sentences:
  - My favorite corner of the garden is. . .
  - My favorite plant is. . .
  - We should . . .

For each entry, please include:

- (1) Your name
- (2) The date
- (3) A weather observation

Caution: Frequent use of the Garden Journal may turn you into a gardening addict!

Name \_\_\_\_\_

**Organic Opportunities Garden/Business Class**  
**Fall 2004 Semester Final**

**Part I: True or False:** *Write T or F on the blank following each statement to indicate whether the statement is true or false.*

1. In our climate we can grow vegetables such as tomatoes, squash, and egg plants year-round. \_\_\_\_\_
2. In our climate, we can grow leafy crops such as lettuce, swiss chard, and mustard greens year round. \_\_\_\_\_
3. Annuals are plants that complete their entire life cycle from seed to seed in one season or one year. \_\_\_\_\_
4. Flowers evolved to attract insects or birds as pollinators to allow sexual reproduction among plants. \_\_\_\_\_
5. Frost can occur at 32 degrees Fahrenheit, killing many seedlings and annuals. \_\_\_\_\_

**Part II: Multiple-Choice** *Circle the best answer. Be sure to read all possible answers before making your choice.*

1. What are two possible parts of an advertisement?
  - (a) award and speed
  - (b) headline and deck
  - (c) sound and fury
  - (d) humor and haircolor
2. What is one of the ways that the vegetables and fruits in our garden are pollinated?
  - a) chickens
  - b) bees
  - c) mosquitoes
  - d) mice
3. Why is it important for farmers to be very aware of their changing garden climate?
  - a) So that they can choose their outfits wisely
  - b) So that can decide where to build buildings on their farms
  - c) So that they can improve their soil
  - d) So that they can decide when to plant, water, harvest and protect crops

**Organic Opportunities Garden/Business Class  
Fall 2004 Semester Final (Page 2)**

4. What was the purpose of the survey we conducted at the community picnic?
  - a) To sell flowers
  - b) To advertise for Organic Opportunities
  - c) To learn about the needs of our market
  - d) All of the above
  
5. "Cash Balance" means:
  - a) The cost of buying products
  - b) Total cash taken in minus all cash paid out
  - c) Total cash taken in minus all operating costs
  - d) Total revenue taken in by a business
  
6. **Choose two** types of market research:
  - a) Surveys of the market, professionals in the industry, etc.
  - b) Direct mail to potential customers
  - c) General research of competitors, government agencies and libraries
  - d) Television and newspaper advertisements
  
7. Customers aren't actually looking for a product; they are looking for \_\_\_\_\_.
  - a) A good price
  - b) Goodwill
  - c) Benefits
  - d) A fair deal
  
8. Publicity is \_\_\_\_\_ promotion received when your product or service is featured in the media.
  - a) Free
  - b) Discounted
  - c) Slanted
  - d) Skewed

**Organic Opportunities Garden/Business Class**  
**Fall 2004 Semester Final (Page 3)**

9. Most of our food crops such as lettuce, tomatoes, beans, peas, and eggplants complete their entire life cycle in one season. These kinds of plants are known as.
- perennials
  - cyclicals
  - annuals
  - cole crops
10. There are several advantages to starting seedlings in seedlings trays rather than direct seeding in the garden beds. Planting in seedling trays gives you the option of more carefully \_\_\_\_\_ the conditions such as temperature, moisture, and amount of light.
- digging
  - controlling
  - planting
  - writing
  - none of the above

**Part III: Constructed-Response** *Respond to 5 of the following questions. Your responses should be at least 3 to 5 sentences long. You may also include sketches or diagrams. Only complete, thorough answers will earn a full five points.*

1. What are the characteristics of a Mediterranean climate such as ours? In your answer, be sure to discuss seasonal differences in temperature and rainfall.
2. It is late February and it has not rained for a month. The forecast for the next three days is for clear skies with nighttime lows between 30 and 34 degrees Celsius. You have a beautiful crop of leaf lettuce. What is one thing you should do to maintain your crop? What other thing might you do to ensure it's safety?
3. Give two or more reasons why it is important to follow guidelines for plant spacing.
4. List the four P's and give a two sentence explanation for each one.

**Organic Opportunities Garden/Business Class**  
**Fall 2004 Semester Final (Page 4)**

5. What is marketing?
6. What is TREX and why do we use it in our garden?
7. When talking about food and crops, what makes produce “organic”. Describe why our crops are organic. Why would a person prefer to eat organic produce?
8. Use all of the following words to explain how to build a garden bed. (a) drill, (b) screw, (c) posts, (d) short board, (e) long board, (f) post-hole digger or shovel, (g) plastic sheeting, (h) wood chips, (i) compost

## **Organic Opportunities Garden/Business Class Performance Assessment Items**

1. Watering
2. Planting Seeds in a Seedling Tray
3. Broadcasting Seeds in a Bed
4. Transplanting
5. Garden Organization/Tools

**LIFE LEARNING ACADEMY CHARTER SCHOOL  
GARDEN WORKDAY RELEASE FORM**

Thank you for your support of Life Learning Academy's Organic Opportunities program. Participation in the Life Learning Academy Garden Workday is voluntary. Please read this form, initial each paragraph, and sign. Your signature on this form indicates that you understand and agree to each and every provision on the form. If you do not understand something on the form, obtain clarification from the Garden Workday Leader.

**EXPRESS ASSUMPTION OF RISK, RELEASE, INDEMNIFICATION  
AND COVENANT NOT TO SUE AGREEMENT**

In consideration for the services of the Life Learning Academy Charter School, its teachers, officers, agents and volunteers (collectively referred to herein as "Life Learning Academy"), I, on behalf of myself and/or as the parent or guardian of the minor child participating in the Life Learning Academy activity, and our heirs, agree as follows:

I understand and am aware that gardening, preparing garden beds, constructing garden structures, food preparation, and related activities including, among others, the use of Life Learning Academy equipment such as shovels, pitchforks, rakes, wheelbarrows, hammers, circular saws, power drills, and screwdrivers (referred to herein as "Activity"), and transportation to and from such Activity, are **HAZARDOUS ACTIVITIES** involving **INHERENT AND OTHER RISKS** of injury to any and all parts of the body. I further understand that injuries in the Activity are a **COMMON AND ORDINARY OCCURRENCE**, and I have made a voluntary choice for myself and/or the minor child listed below to **ACCEPT AND ASSUME ALL RISKS OF INJURY OR DEATH** that might be associated with or result from this Activity. \_\_\_\_\_ **Initial**

To the fullest extent allowed by law, I agree to **RELEASE FROM LIABILITY**, and to **INDEMNIFY AND HOLD HARMLESS** Life Learning Academy from any and all liability on account of, or in any way resulting from, personal injuries, death or property damage, even if caused by **NEGLIGENCE**, in any way connected with this Activity. I further **AGREE NOT TO MAKE A CLAIM OR SUE FOR INJURIES OR DAMAGES RELATING TO THIS ACTIVITY**, even if caused by **NEGLIGENCE**. I understand and agree that this Agreement is intended to be as broad and inclusive as is permitted by law, and if any portion is held invalid, the balance shall continue in full legal force and effect. I agree that no oral representations, statements or inducements apart from this Agreement have been made. \_\_\_\_\_ **Initial**

I HEREBY ACKNOWLEDGE THAT I HAVE FULLY READ, UNDERSTOOD AND ACCEPTED EACH OF THE ABOVE PROVISIONS, AND VOLUNTARILY SIGNED THIS AGREEMENT.

\_\_\_\_\_  
(NAME OF MINOR PARTICIPANT)      (NAME OF PARENT OR GUARDIAN OF  
MINOR PARTICIPANT)

\_\_\_\_\_  
(SIGNATURE OF PARENT/GUARDIAN OF MINOR PARTICIPANT)  
(DATE)

Name \_\_\_\_\_

## Composting: Do the Rot Thing

### Word Bank

•organisms •water •microorganisms •energy •mulch •cover •air •dead plants •dirt  
•nitrogen •environment •food scraps •grass •fertilize •animal manure •carbon •brown  
leaves •sawdust •straw

1. Organic matter is simply material that comes from living \_\_\_\_\_ ---plants, animals, or fungi.
2. All organic matter \_\_\_\_\_ or breaks down. A compost pile simply creates the ideal conditions for the \_\_\_\_\_ that break down the organic matter.
3. Keeping a balance between the \_\_\_\_\_ (high nitrogen) and brown (high carbon) materials is important.
4. Three green (high \_\_\_\_\_ ) materials are: \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
5. Three brown (high \_\_\_\_\_) materials are: \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
6. To create good compost you need the following four elements: (1) greens, (2) browns, (3) \_\_\_\_\_ and (4) \_\_\_\_\_.
7. The main brown we use here at LLA is \_\_\_\_\_.
8. It is important to \_\_\_\_\_ food scraps with a layer of browns.
9. Compost is ready to harvest when it is rich, brown, and looks like \_\_\_\_\_.
10. Unfinished compost can be used as \_\_\_\_\_ on top of the soil to prevent weeds and hold moisture.

11. Finished compost can be dug into the dirt to improve the soil and \_\_\_\_\_ plants.

12. Composting cuts down on \_\_\_\_\_ use, water use, and landfill space. It is an easy thing everyone can do to help the \_\_\_\_\_.

## Organic Opportunities

### •Harvest Ticket•

Name: _____
Date: _____
Product: _____
Amount: lbs/units (circle one)
_____
Bill to:
_____

Appendix: Organic Opportunities Handouts and Lecture Notes

<b>Question</b>						
<b>1. I eat fresh vegetables. . .</b>	3 times/day	1 time/day	2-5 times/week	1 time/week	Less than 1 time/week	Almost never
<b>2. I eat meals from fast food restaurants. . .</b>	2 times/day	1 time/day	2-5 times/week	1 time/week	Less than 1 time/week	Almost never
<b>3. I consume chips, soda, fries, candy bars, or other junk food snacks. . .</b>	3 times/day	1 time/day	2-5 times/week	1 time/week	Less than 1 time/week	Almost never

<b>Question</b>	1	2	3	4	5
<b>4. "I enjoy fresh vegetables."</b>					
<b>5. "I would be healthier if I ate more fresh vegetables."</b>					
<b>6. "I would enjoy eating vegetables more if I grew them myself."</b>					

## **Sowing Seeds in a Seedling Tray**

1. Fill seedling tray with compost/dirt
2. Measure out 2” by 2” squares
3. Find planting depth on back of seed packet
4. Plant one seed in the middle of each 2” by 2” square at the proper planting depth
5. Cover all the seeds with soil
6. Label with (a) Name of seed, (b) date planted, (c) your name
7. Water

## **Tending Your Garden Bed---Weeding and Thinning**

Weeding---Why weed?

- Weeds will compete with your seedlings for water, light, and nutrients.

Thinning---Why thin?

- Seedlings will compete with one another for water, light, and nutrients. If they don't have to compete with one another, then they'll grow stronger and faster.

Thinning---How much to thin?

- Consult the back of the seed package or the growing instructions section in the Golden Gate Gardening guide.

Thinning---How to thin?

- Grasp the seedling by the stem and rip out.

Other---Harvest lettuce, chard, mustard thinned seedlings to use in salad mixes

## *How to Build a Garden Bed*

### **Tools Needed:**

- shovels
- rake
- 2 or more drills (1 with a drill bit, 1 with screwdriver bit)
- level/t-square
- 1 or more tape measures
- enthusiastic crew

### **Materials:**

- 4 short 2x10's (4 feet long)
- 4 long 2x10's (12 feet long)
- 4 4x4 posts (26 inches long)
- 4 2x4 posts (26 inches long)
- 3 inch screws (56)

### **Steps:**

(Split crew into two. Work on both 1A and 1B simultaneously.)

**(1A) Assemble both ends.** Build each end unit the same way, as follows...

- (a) Get 2 short 2x10 boards and 2 4x4 posts
- (b) Attach one 2x10 board flush with end and edges of 2 posts at 90 degree angles. Use 2 or 3 screws at each end of 2x10.
- (c) Attach second horizontal board flush with first one. You will have about six inches of 4x4 post protruding.

**\*\*\*\*SEE FIGURE 1\*\*\*\***

**(1B) Prep grounds**

- (a) remove cinderblocks
- (b) level edges of planter bed area (does not need to be perfect)
- (c) dig post holes
  - i. remeasure corner post holes from fence
  - ii. holes should be six inches deep and big enough to accommodate a 4x4
  - iii. reserve dirt to back fill
  - iv. 6 holes total---4 corner holes and 2 holes in middle of sides

**(2) Position end pieces** by placing protruding 4x4 post ends into post holes. Bottom 2x10's should be flush with ground and level.

**(3) Remeasure** and check for **squareness** and **level**. Distance between outer edges of posts should be 12 feet. Use tape measure, level, and t-

square.
(4) <b>Attach long boards.</b> Ends of long 2x10 board should be flush with outside edge of 4x4 vertical posts. Bottom edge of long 2x10 should be flush with ground and level. Once you have attached the bottom horizontal board, attach the top board on each side.
(5) <b>Attach middle posts</b> (2x4's). Use two or three screws per 2 x 10.
(6) <b>Line bed</b> with plastic liner. Liner must cover bottom. (a) For handling ease, cut plastic 16 feet long by 8 feet wide. Drape liner so that it covers sides of planter box. (b) Punch many drainage holes in plastic liner with pitchfork, scissors, or pencils. There should be at least one drainage hole every six inches. (c) Add three inches of wood chips covering the entire bottom of the bed. (d) Add 6-12 inches of straw or compost covering the entire bed area (e) Fill the bed with dirt



# Foods/Nutrition Class Handouts and Lecture Notes

## **Nutrition Basics (Include all of these in your mini-books)**

- 1) **Calorie** (what is a calorie, how many calories in proteins, carbohydrates, and fats, how many calories do you need a day?)
- 2) **Carbohydrates** (simple, complex, sugars, starches, which foods contain them)
- 3) **Proteins** (amino acids, complete, incomplete, which foods contain them)
- 4) **Fats** (saturated, unsaturated, hydrogenated, which foods contain them)
- 5) **Vitamins** (fat-soluble, water soluble, where do we get our vitamins)
- 6) **Minerals** (macronutrient minerals, trace minerals, where do we get vitamins)

## Media Literacy Lecture Notes

- (1) Establish link between media consumption and nutrition
  - a. Personal experience---name a commercial related to food
  - b. Kids club
  - c. Kaiser Family Foundation report
  
- (2) Advertising/Marketing: Where do we get it?
  - a. Brainstorm media/sources of advertising:
    - i. TV, radio, cross-marketing in films and video games, internet, magazines, newspaper, sponsorships, billboards. . .
  - b. Discuss students' personal exposure
  
- (3) Advertising/Marketing Strategies
  - a. Advertising strategy sheet
  - b. Model poster
  - c. Pair work: 1 advertisement
  - d. Poster: (1) Product being advertised, (2) Target audience + evidence, (3) 1 or more advertising strategy used, (4) do you think this is an effective advertisement---why or why not?, (5) Do you think this is an ethical advertisement---why or why not?
  
- (4) Advertise a garden product
  - a. Target audience
  - b. Use at least two advertising strategies
  - c. 30 seconds or less

## **Advertisement Analysis Poster Assignment Sheet**

Your poster must include the following elements:

- (1) Product being advertised
- (2) Target audience (and what was it about the advertisement that led you to believe this was the target audience),
- (3) 1 or more advertising strategy used,
- (4) Do you think this is an effective advertisement---why or why not?
- (5) Do you think this is an ethical advertisement---why or why not?
- (6) Your names

## **Food/Nutrition and Culinary Arts---Diet Analysis Paragraph Rubric**

### *Criteria*

#### *Notes*

#### **1. Content**

- Refers to all food groups in the ideal Mediterranean diet (*Saturated fat, red meat and butter/White bread, rice, and potatoes/Dairy and calcium/ Fish and poultry/Nuts and legumes/Fruits/Vegetables/Whole grains/Plant Oils and Unsaturated Fats/Exercise*)
- Compares individual's diet to the ideal Mediterranean diet
- Statements about diet are correct and accurate
- Evaluates overall diet

1 2 3 4 5 6 7 8 9 10

#### **2. Organization and Clarity**

- Includes a title, topic sentence, and conclusion sentence
- Sentences are clear and make sense

1 2 3 4 5

#### **3. Polish**

- Free from mistakes in grammar, spelling, and usage
- Includes name
- Printed in a standard font

1 2 3 4 5

Name \_\_\_\_\_

Date \_\_\_\_\_

Warm-Up: \_\_\_\_\_

\_\_\_\_\_

### ***Serving Size Notetaker***

Food Pyramid Food Group:	
Type of Food	What counts as one serving?

Food Pyramid Food Group:	
Type of Food	What counts as one serving?

Food Pyramid Food Group:	
Type of Food	What counts as one serving?

## **BUILDING A FOOD PYRAMID**---Categories and Hints

### **Categories**

Whole Grains

Plant Oils/Unsaturated Fats

Exercise

White Bread, Potatoes, White Rice

Dairy Products and Calcium

Red Meat, Butter, and Saturated Fats

Fish and Poultry

Nuts and Legumes

Fruits

Vegetables

### **Hints:**

- Whole grains are high in fiber which helps prevent cancer. Whole grain carbohydrates take longer to convert to blood sugar which is much, much better than refined grains. You should eat whole grains at most meals.
- Recent studies have revealed that in cultures where people consume most of their calories in the form of plant oils the rates of heart disease are the lowest. You should eat plant oils at most meals.
- You should exercise everyday. Exercise is the foundation of a healthful lifestyle.
- White bread, potatoes, and white rice are examples of refined grains and carbohydrates that convert to blood sugar very quickly. This causes a spike in insulin levels. Long-term effects of eating high amounts of white bread, potatoes (think French fries) and white rice include obesity and diabetes. You should avoid these items.

- You should limit your dairy intake to 1 to 2 servings a day. You need the calcium, but dairy has saturated fats which you should limit.
- Studies show that consuming high amounts of red meat, butter, and other saturated fats leads to heart disease and cancers. Avoid these when possible.
- Fish and poultry are good sources of complete proteins without all the saturated fats of red meat. Eat these products 0 to 2 servings a day.
- You should eat nuts and legumes more often than you eat fish and poultry, but less often than you eat fruits and vegetables.
- You should eat 2 to three servings a day of vegetables.
- You should eat 2 to three servings a day of fruits.

Name \_\_\_\_\_

## **Food/Nutrition and Culinary Arts Fall Semester Final Exam**

- I. **True or False:** Write *T* or *F* on the blank following each statement to indicate whether the statement is true or false.
1. Sugar is on the food pyramid. \_\_\_\_\_
  2. Our new planter beds are built from Trex, a material made from 50% recycled plastic milk jugs and 50% recycled pallet wood.  
\_\_\_\_\_
  3. The food cycle starts at the Café and goes to the Kitchen and ends at the Garden. \_\_\_\_\_
  4. The purpose of the Café is to make money for the school.  
\_\_\_\_\_
  5. In order for a plant to produce a fruit (*such as a tomato, squash, eggplant, raspberries, zucchinis, strawberry, beans, or pumpkin*), its flower must first be fertilized. \_\_\_\_\_
- II. **Multiple-Choice** Circle the best answer. Be sure to read all possible answers before making your choice.

### **Nutrition**

1. The very top section of the food pyramid shows...
  - (a) foods you should eat all the time
  - (b) foods you should rarely or almost never eat
  - (c) foods you should eat sometimes
  
2. You will find plant oils and unsaturated fats. . .
  - (a) at the bottom of the pyramid
  - (b) at the top of the pyramid
  
3. You will find white bread, white rice, red meat, saturated fats. .
  - (a) at the top of the pyramid
  - (b) at the bottom of the pyramid
  
4. Each day you should consume. . .
  - (a) 2 glasses of water
  - (b) 8 or more glasses of water
  - (c) 6 cans of soda

5. Hydrogenated oils or partially hydrogenated oils. . .
  - (a) cause heart disease
  - (b) high cholesterol
  - (c) are found in products like Crisco, Twinkies, Oreos, and fast food hamburger buns
  - (d) all of the above
  
6. In general, the **less** processed a food is. . .
  - (a) the healthier it is
  - (b) the more nutrients it contains
  - (c) the less sodium it contains
  - (d) all of the above
  
7. The typical American diet. . .
  - (a) contains too much saturated fat
  - (b) contains too much water
  - (c) contains portions that are too large
  - (d) is high in fish
  - (e) answers A and C above

### **Garden**

8. When preparing a garden bed for planting, you dig up the soil in order to. . .
  - (a) to kill earthworms
  - (b) allow air and water to better penetrate the soil
  - (c) to upset the balance of microbes living in the soil
  
9. The purpose of the LLA garden is to. . .
  - (a) teach you basic gardening skills
  - (b) grow nutritious organic produce for the school
  - (c) grow organic produce to sell on the island
  - (d) to create an interesting place for hands-on learning
  - (e) all of the above

### **Café**

10. The way you conduct yourself in the Café...
  - (a) affects the customer's experience
  - (b) has no effect on the customer's experience
  - (c) should be about having a good time

Name \_\_\_\_\_

**Food/Nutrition and Culinary Arts Final Exam Continued**

III. **Constructed Response** *Respond to 5 of the following questions. Your responses should be at least 3 to 5 sentences long. You may also include sketches or diagrams. Only complete, thorough answers will earn a full five points.*

1. What is a food label and what kind of information can you find on it? (Nutrition)
2. What are the three basic nutrients and in which kinds of foods will you find them? (Nutrition)
3. Explain what is expected of you when you first get to the café? (Café)
4. List the three safety procedures when working with the slicer. (Kitchen)
5. What is compost and why is it good for our plants? (Café)
6. Explain what organic means and why some people prefer to eat organic produce. (Garden/Kitchen)
7. What are three ways you could improve your diet? (Nutrition)
8. “Your diet today does not effect your future health.” Do you agree or disagree with this statement. Explain why using specific details. (Nutrition)

**BONUS QUESTION:** Explain what *The Matrix* has to do with this class.

## Culinary Arts Curriculum

### Nutrition Facts—*For Yo!*

How many calories do you need each day? How much fat? Carbohydrate? Fiber? Protein? The %Daily Values are based on 2,000 calories a day. But even if you eat more, or less, you can use the %Daily Values as your guide to healthy eating. Here's how you do it!

#### 1. HOW DO YOU MAKE YOUR MOVES?

Check the box that best describes you

**S-l-o-w "Mo."** You take a lot of life in the slow lane—watching television, talking on the phone, and sitting or standing around. Your physical activity adds up to a weekend game of pickup basketball, or occasionally cycling swimming, or doing some other sport.

**On-the-Move.** You keep your body moving with 30 to 60 minutes of physical activity at least three times a week—such as brisk walking, cycling, or running.

**Real Mover!** With either individual or team sports, your body gets a real workout—about an hour of rigorous exercise at least four times a week.

#### 2. CALORIES—HOW MANY FOR YOU?

That depends on you ... your age ... your sex ... and just how active you are. The chart below shows about how many calories the average "*on-the-move*" teen needs each day. If you're a "*s-l-o-w mo*," you need somewhat less. And if you're a "*real mover*," you need more.

AGE		CALORIES EACH DAY
FEMALE	11-18	2,200
	19-22	2,200
MALE	11-14	2,500
	15-18	3,000
	19-22	2,900

#### 3. Nutrients—Your Own Values

On a label, the 100% Daily Value for each nutrient is based on a 2,000 calorie diet. But if you know about how many calories you need, you can put Daily Values to your personal use. Just use the chart below.

- Circle the calories you need from step 2.
- Underneath, find your nutrient goals. Circle them, too.

- Now, circle the % Daily Value that you should strive for each day. If you need more than 2,000 calories a day, the foods you eat will add up to more than 100% of the Daily Value for fat, saturated fat, carbohydrate, fiber, and protein.

(For every calorie goal, vitamins and minerals stay the same: at least 100% of the Daily Value.)

Calories	2,000	2,500	2,800	3,500	4,000
Total fat (g)	65	80	95	120	135
Saturated fat (g)	20	25	30	40	45
Cholesterol (mg)	300	300	300	300	300
Total carbohydrate (g)	300	375	425	525	600
Dietary fiber (g)	25	30	30	40	45
Protein (g)	50	65	70	90	100
For each of these nutrients, your %Daily Value can add up to...	100%	125%	140%	175%	200%

From <http://www.ific.org/publications/other/tnfiles2.cfm?renderforprint=1>