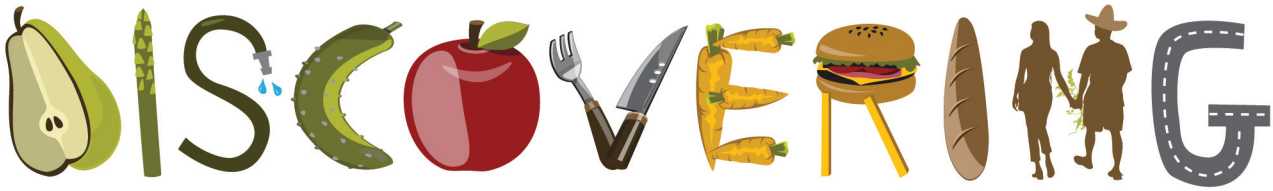

Our Food System

Experiential Learning & Action for Youth and Their Communities

Cornell University Cooperative Extension

Cornell Garden Based Learning

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Overview

Welcome to *Discovering Our Food System*, an interdisciplinary, community-based exploration of the people and processes that shape our food system. Rooted in the places we live, eat, work, learn, and play, *Discovering Our Food System* will help youth better understand what the food system means to them, how it affects their community and their health, and ways in which they can influence the food system.

This curriculum has been created primarily for educators who work with youth ages 12-18. However, it is a framework and approach that is adaptable to a wide range of ages and educational settings, including:

- students and teachers in a school-based classroom setting
- home school students and their parent-teachers
- school and community gardens
- educational farms and environmental education centers
- nutrition education and wellness programs
- community and service-oriented groups, such as 4-H, Girl Scouts, Boy Scouts, etc.
- after school programs
- anyone who is curious about food, and wants to explore the varied ways it gets from farm to table, and how to get more involved in their food system.

The Goals

Youth will:

- Gain an enhanced awareness of the food system and foods from their region
- Explore the connections between personal food choices and food systems
- Develop their relationships with their community
- Apply their learning to the development of a community research-to-action project

The Approach

Youth will:

- Learn through direct exploration of their food system
- Be immersed in a highly participatory and community-based experience
- Engage in cooperative and inquiry-based learning with their peers

The Place

This curriculum was developed in New York State with the Northeastern United States in mind. *Discovering Our Food System* is very much about place – where we live and eat, where our food is grown, processed and marketed – and the many people involved in getting food from farm to table. Students will become familiar with elements of the food system within the context of their own geographic area – neighborhood, city, county, state, and region. As place is central to this discovery process, the curriculum may be used anywhere in the world, but may need to be adjusted to reflect the location.

The Context

Food is our common ground, a universal experience.
- James Beard

We all need to eat. Food provides essential nutrients for growth and development, energy to carry out physical work, and tastes and pleasure that add enjoyment to life and help define who we are. We meet this need through a complex set of interdependent processes from seed to table and back again. These processes—and the resources that support them—make up the food system. While most people come into contact with food on a daily basis, our food system is largely hidden from view. Fewer Americans have direct farm, gardening, or food preservation experience today than at any time in history. For many, the connections food can provide to our community, economy, health, and the natural environment is lost amidst the more than 30,000 food items available in grocery store aisles.

Making these connections is exactly what *Discovering Our Food System* is designed to help young people do. In a vast sea of mixed messages about food, farming, and nutrition, learning more about our food system is key to making informed food-related decisions that have the power to improve personal health and the economic, social, and environmental well-being of our communities.

Organization

Discovering Our Food System is organized into two sections: *You and Your Food System* and *Food System Research to Action Project*. The sections are divided into a series of units, each with its own group of activities, related information, and resources. We have arranged *Discovering Our Food System* with a sequential flow, but activities may be used independently or in a different order, depending on student and program needs. Throughout the curriculum, students are encouraged to intentionally reflect on their experiences by thinking about what they have learned, what it means to them, and what they will do next with this information.

Section 1: You and Your Food System

You and Your Food System is designed to help students explore how nutrition, diet, and the food system are interconnected. We introduce food system components and concepts, including an overview of dietary guidelines and food guides, while students investigate how their daily food choices influence and are influenced by the food system.

Unit 1: Food and You

Helps youth to think about food in their everyday lives.

Unit 2: Food System Basics

Introduces the concept of a system and the various components of food systems.

Unit 3: Global and Local

Introduces local and global food systems and helps students consider the benefits and drawbacks of each.

Unit 4: Nutrition and Health

Introduces food guides and helps youth to think about the connections between health and the food system.

Unit 5: Food Labeling and Advertising

Guides students in understanding the Nutrition Facts food labels, and in considering food system information that might also be included. Students will also think critically about food advertising.

Unit 6: School Lunch Laboratory

Helps students think about their lunch in the school cafeteria in light of their learning about the food system.

Section 2: Food System Research to Action Project

The Food System Research to Action Project provides tools for conducting a community-based food systems research project. The project focus and the methods used should be guided by youth interest, and may also be informed by community need. It is this flexibility that assures a high level of authentic youth engagement. Students are provided with tools for exploring their food system through internet and print searches, personal interviews, and conducting a survey. They will have an opportunity to research their food system, interview people who represent various aspects of the food system, and survey their community. Next, youth will share their findings and recommendations with the broader community.

Combined, this work can inform an action project, designed and implemented by youth to meet the needs of their community. In addition to addressing a number of learning standards across the curriculum, conducting real research in their own community supports the development of innovative problem-solvers, reflective thinkers, and engaged citizens.

Step 1: Finding Food System Facts

The background research phase of the project, this step provides tools and guidelines for locating and understanding data that have already been collected about the food system, and are available for use and interpretation. This is very much like the processes being used across the country to conduct community food assessments. Youth will learn about the breadth of issues related to the food system that they might encounter in current articles, books, or films. Students will build an awareness of some of the basic data currently available about our food system. This exploration of existing facts will help students as they begin to develop a research question and move on to their own data collection and analysis.

Step 2: Learning from People in the Food System

Provides further understanding of our food system as students move from exploring existing data to collecting original data by interviewing people they identify as playing important roles in the food system. This step builds on the previous one by clarifying the aspects of the food system that most interest students, identifying people directly involved in those aspects, and formulating questions about issues for those most likely to have interesting insights. It provides an opportunity for youth to gain experience with a qualitative social science method: an open-ended, in-person interview. Youth will practice basic interviewing techniques, contact community members, arrange meetings, and conduct interviews.

Step 3: Community Survey

Provides an opportunity to work with a classic quantitative social science method: a survey. Youth will design a questionnaire and conduct a survey on a topic of interest. In doing so, they will discover community attitudes, beliefs, knowledge and behaviors related to food system issues.

Step 4: Sharing Food System Stories

This step helps youth take their new food system knowledge and present it to their community with an eye toward community change. Youth will create and deliver a presentation that incorporates food system facts, their interview and survey results, and, based upon this exploration, their recommendations regarding the food system.

Step 5: Now What?

Guides youth in reflecting on their work so far and considering their next steps.

Each unit has the following layout:

Overview
An introduction to the concepts and activities that will be covered in the unit.

Learning Objectives
What students will learn through completing the unit. The objectives also provide guidelines for assessing youth learning upon completion of the unit.

Key Concepts
Big ideas relevant to understanding the food system and the relationship between consumers and the food system.

Learning Standards
New York State learning standards met by the unit.

Time Estimate
Estimate of how long the activity will take. Note that most activities can be condensed or expanded depending on your needs.

Background
Background information to help educators in navigating the unit, facilitating student discovery, and guiding discussion. Our goal is to provide enough information so that you will feel familiar with the major issues and questions involved in discussing these topics. Keep in mind that the food system is complex, and you and your students will certainly raise important issues not covered comprehensively in this curriculum.

Getting to the Core
A concrete example of how the concepts being discovered can be applied to real food. Apples are used throughout to provide continuity and to help students understand the entire food system as it relates to one food item.

Students can develop their own “getting to the core” example. They might choose to focus on a potato, tomato, strawberry or orange, or a product grown in their region. Additionally, students might choose a food product that contains more than one ingredient, such as berry yogurt. The important thing is that the food chosen has meaning and relevance to students and their place.

Activities/Steps
Each unit has several activities or steps within it.

Food for Thought Journal
Each unit includes a journal entry to help students further connect their learning to the context of their own lives.

Going Further
Students may be interested in learning more about a topic. Here you'll find ideas for optional activities that will take student learning to the next level.

Resources
Some of the lessons will guide students in investigating and seeking data about their local food system. This component contains resources that may be helpful in completing or augmenting the unit. The resources include websites and contact information for community organizations and governmental agencies.

Student Portfolio
To assess student learning, we suggest collecting work produced in each of the units into a food system portfolio. The resulting collection will help display how their understanding expanded through the curriculum and will provide a reference packet for future work.

Glossary
Throughout the units certain words and phrases appear in bold type. Explanations of these words can be found in the glossary. Students may also wish to create their own food systems glossary.

Food Systems 101

This document is designed to introduce educators to the concept of food systems and community food systems, giving them enough background information to feel comfortable using this curriculum.

All people who eat can benefit from learning more about the food system and from participating in its development. A variety of alternative systems exist for meeting our daily food and nutrition needs. As individual stakeholders, we all can play a role in shaping the future of our food systems.

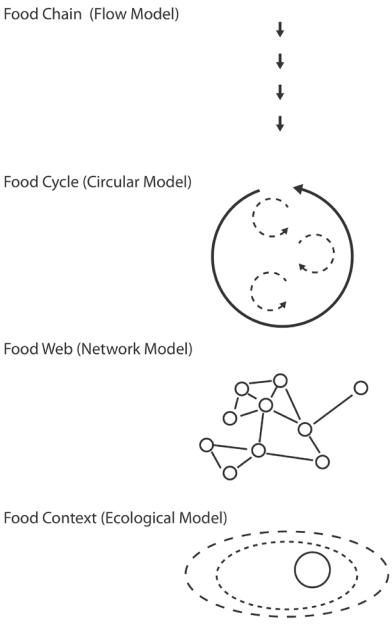


Figure 1, from Sobal, et al. (1998)

What is a system?

A **system** is a group of interrelated and interdependent elements that function together as a unified whole. Because it is so interdependent, a change in one element of a system affects every other element in the system, whether directly or indirectly. Although a system functions as a unit, it also interacts with the larger external environment. Some examples of systems are the interstate highway system and the human body.

What is a food system?

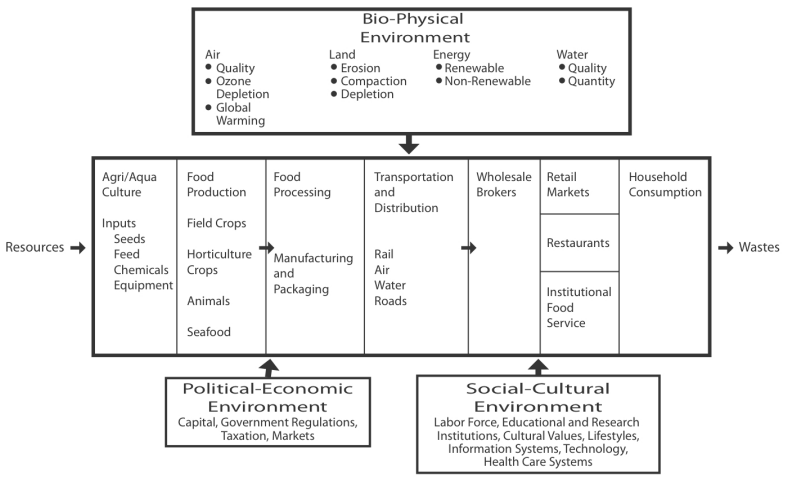
A food system is how we get our food. The food system includes all processes involved in feeding people: growing, harvesting, processing, packaging, transporting, marketing, consuming and disposing of food and food packages. It also includes the inputs needed and outputs generated at each step. The food system operates within and is influenced by the social, political, economic and natural environments. Each step is also dependent on human resources that provide labor, research and education. The food system is connected to many other areas of life, such as nutrition, food, health, community economic development, and agriculture.

A model may help in understanding this complex and interdependent system. The food system can be conceptualized, and modeled, in several different ways. Sobal, Khan, and Bilogbi (18) reviewed the types of food system models that people have used over the years (Figure 1).

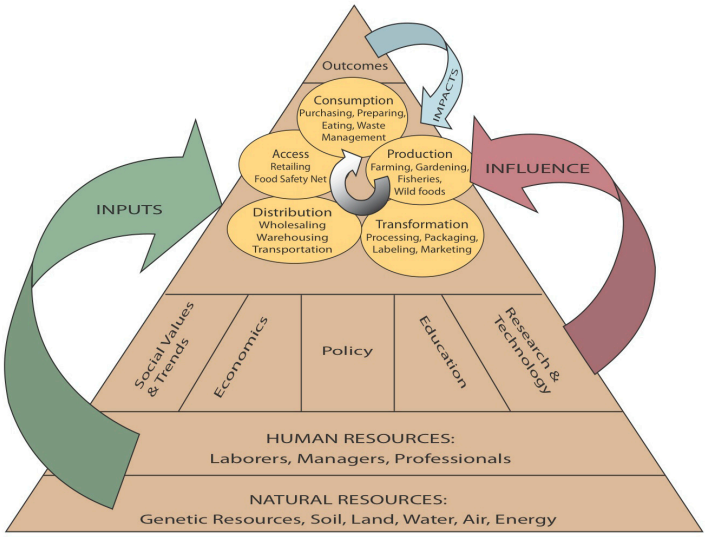
A linear model might start with production and proceed through transportation, processing, and marketing, to consumption.

Growing ⇨ Transporting ⇨ Storing ⇨ Processing ⇨ Packaging ⇨ Retailing ⇨ Consuming

A linear model might also consider the external environment in which the food system operates:



However, the complexity of a food system is not reflected in a linear model. Other ways to think about the food system include food webs, food circles or cycles, and contextual models. These types of models can more clearly reflect the interaction among the system components. The Sustainable Food System Model, developed by the American Dietetic Association, emphasizes the human, economic, and natural resources on which the food system is built and the interactions among key components of the food system:



Where do I fit into a food system?

The food system may seem large, abstract, or distant to people not directly involved in food production, processing, or sales. However, as the model above illustrates, people are involved at every stage of the food system. Even people who think the food system does not involve them participate in the food system every day through purchasing and eating food.

What are some types of food systems?

There are many different types of food systems around the world. A food system can be simple or complex, local or global, or even regional. Much of the food found in a standard grocery store arrives through the **global food system** - the products may come from anywhere in the world, via national and international distributors. On average, food in the global food system travels over 1000 miles from where it is produced to where it is consumed. **Regional food systems** may serve a state or other region. Networks of farmers supply regional retailers and wholesale distributors. A **local food system** is one in which food is produced in a small area and food may be marketed directly to consumers or institutions. Local food systems can include production, processing, and retail elements. Similarly, a **community food system** is based in a local area, but works to integrate all aspects of the food system in ways that ensure economic, social, and environmental sustainability.

Community Food Systems

Many people and organizations are becoming interested in community food systems as an alternative to the mainstream global food system. A community food system integrates food production, processing, distribution, consumption and disposal to enhance the environmental, economic, social and nutritional health of a particular place (Garrett & Feenstra, 1999). The place can be a relatively small area, such as a neighborhood, or a larger area, such as a town, city, county, or region. The term community food system is sometimes used interchangeably with “local”, “regional”, or “sustainable” food systems, but a community food system emphasizes strengthening the relationships among people and the various compo-

nents of the food system. Because it is integrated and community-oriented, participants are typically more involved in this type of food system and may participate in decisions about food production and processing.

Community food systems offer a holistic approach to meeting food needs that is more sustainable over the long term and that considers all the costs of the food system, including, but not limited to, dollars and cents. Food producers, processors, and consumers are stakeholders in the community's economic, social, and environmental health as well as in the quality of food produced. Inputs can be reduced, and benefits to the community increased: community food systems support the local economy, improve food security, and maintain green spaces. Community food systems may exist in urban, rural, and suburban areas.

This curriculum takes the position that our current approach to food systems may not be sustainable, that community food systems are a viable alternative to consider, and that active engagement in understanding our food system is a responsibility we all have as eaters. However, we do not promote one approach over another but rather support a critical examination of food systems alternatives.

Goals of Community Food Systems

Community food systems have a variety of goals:

- Improved health, reduced risk of diet-related chronic diseases. Community food systems consider health as one factor in making decisions about production and processing.
- Increased enjoyment of food by community members. By participating more actively in the food system, community members become more connected to their food and food becomes an integrated component of community life.
- Dietary habits that complement the seasonal availability of foods produced and processed by the local food and agriculture system.
- Access for all community members to an adequate, affordable, nutritious diet.
- A stable base of small to mid-sized farms that use integrated production practices that enhance environmental quality, rely as much as possible on local inputs, and endeavor to reduce chemical and energy inputs.
- Marketing channels and processing facilities that create direct links between farmers and consumers, and, by shortening the distance between these partners, conserve resources needed for transporting food.
- Food and agriculture-related businesses, resulting in strong community economies through job creation and re-circulating financial capital in the community. Such businesses could include food processing, expanding opportunities for consumption of locally produced food.
- Increased public participation in food and agriculture policies that promote local food production, access to local retail and processing markets, and institutional procurement of local agricultural commodities.
- Food production and processing practices that are sustainable over the long term.

(REFS: http://www.sarep.ucdavis.edu/cdpp/cfsdefinition.htm; Garrett & Feenstra, 1999)

Some Elements that Characterize Community Food Systems

Community food systems may feature:

- Farmers markets provide the opportunity for eaters to meet and talk directly with the people who grow the food they are buying. By the same token, farmers can learn more about what their customers want and need to know about the food from their farms. Farmers and shoppers typically travel relatively short distances to market, increasing proximity and the sustainability of the system.
- Community and school gardens are an important source of fresh produce, increasing dietary quality and food security. They provide spaces for community interaction, decision-making, problem-solving, creativity and celebration. Community gardens also pro-

vide opportunities to learn about food production, develop job skills, increase agricultural literacy, generate food-related businesses, and create links to nearby restaurants, soup kitchens, food pantries, etc, helping to develop a direct understanding of our part in the food system.

- Community supported agriculture (CSA) is an arrangement through which a group of people buys shares of the future harvest of a farm before the crops are planted. In exchange for their investment in the farm, shareholders receive farm products throughout the harvest season. By making this investment, CSA members accept part of the financial risks associated with farming. Further, the farmer receives payment at the beginning of the season, when it is most needed.
- U-Pick operations and farm stands provide access to fresh produce direct from the farmer who grew it. Through a U-Pick, the price paid to the farmer may be reduced in exchange for harvest labor. Eaters interact with farmers and experience another aspect of the food system as they acquire particularly fresh produce.
- Community kitchens are facilities where locally produced foods can be processed or preserved by members of the community. Food product development often takes place at these facilities, creating income generating opportunities and products with local identity.
- Small-scale food processing and decentralized root cellars make locally produced foods available “out of season,” through storage, canning, and freezing, and further support the local economy.
- Food banks are places where people with more food than they need can donate it for use by people who do not have enough food.
- Home gardens can have a significant role in the food system since they provide an opportunity for direct learning, sharing of knowledge among family members, friends and neighbors, and are often a springboard to greater linkages and understandings – a window into local agriculture.

Externalities

Externality is an economic term for costs or benefits that are not acknowledged within the system. For example, the pollution generated by transporting food by truck is not paid for by the trucking company or by the consumer who purchases that food. Instead, this cost is borne by the society as a whole. The environmental and social costs related to food production, processing, storage, and distribution are seldom accounted for in the price we pay for food at the grocery store register. By reducing the physical and psychological distance between producers, processors and consumers, community food systems concentrate these external costs closer to home and may actually reduce many of them. For example, since the distance food travels in a community food system is usually shorter, less fossil fuel is burned, less pollution generated, and less wear and tear on trucks and roadways results from the transportation of food. Likewise, because more of the steps in the food system are carried out locally, food system-related jobs may be created or maintained.

Supporting Community Food Systems

To support and strengthen community food systems, consumers can:

- Choose a diet rich in locally grown and locally processed foods. Regional food guides, such as the Northeast Regional Food Guide, provide guidelines to help consumers choose healthy local and seasonal diets.
- Ask food stores to buy from local growers and processors.
- Ask where items on restaurant menus came from and express interest in eating locally produced and processed foods.
- Shop at farmers markets and farm stands, to support local producers directly.
- Buy a share in a CSA farm or sponsor someone else’s share.
- Participate in a community or school garden or start a home vegetable garden and share excess with neighbors, a community kitchen or local soup kitchen.
- Cook from scratch, as in this way it is easier to know the source of your ingredients.
- Support policies that favor local farms and other elements of community food systems, join or create a food policy council to assess community assets with respect to the local food

system, identify areas of need, and develop strategies collectively to meet those needs.
- Consider seasonal availability in planning meals.
- Ask institutions, such as your local school or hospital, to use locally sourced foods.

In order to support community food systems, consumers need:

- Access to nutritious and culturally appropriate local foods.
- Confidence, knowledge and resources to help them identify and support local options.
- Opportunities to learn meal planning and preparation skills.
- Understanding of seasonal variation.
- Knowledge of the local food and agriculture system.
- An appreciation of the benefits of eating seasonally and locally.

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Unit 1: Food and You

Introduction

The purpose of this unit is to introduce a discussion of food and to help students identify and explore their relationship to food and the food system.

Eating is a very concrete way that we connect with our food system – several times each day – whether we realize it or not. To help students understand their connections to the food system, this unit begins with a discussion of students' own food cultures and then focuses on a specific meal that students have eaten. Finally, the Food for Thought Journal will help students reflect on their daily food choices.

NY State Learning Standards
English Language Arts 2, 4
Mathematics, Science, and Technology 2

Getting to the Core

Apples have been important in cultures throughout history. The apple plays a central role in the Biblical story of Adam and Eve. In American folklore, Johnny Appleseed travelled the country planting apple trees. Isaac Newton reputedly discovered gravity when watching an apple fall from a tree. In parts of Latin America, apples and cider are traditional foods at Christmas time. The Celts associated apples with immortality and knowledge. To the Norse, apples represent long life, wisdom, and love. In the story of Snow White, the stepmother offers her a poisoned apple. Apples and honey are a traditional food at the Jewish new year.

Learning Objectives

- Explain the role that food plays in their life
- Describe their own and someone else's food customs and habits
- List some of the steps that make a meal possible

Key Concepts (See Glossary for definitions)

- **Food Customs**
- **Food Culture**
- **Food Values**

Background

We all connect with food each time we eat. However, food plays different roles for different people. Some people see food as simply a source of nutrients needed for survival. For some, food represents a connection to a cultural heritage. To some people, cooking or eating is a social activity. Some people enjoy preparing food from scratch; others would prefer something ready-made. Some people savor their food; others eat on the run. Some people live to eat; others eat to live. Everyone has a relationship with their food, and this relationship is often central to who we are. This unit gives youth a chance to explore their own and others' relationships to food.

Note: Be sensitive to your group. If some students come from **food insecure** households, particularly if others do not, they may be uncomfortable sharing their meals and how it relates to their food culture. In addition, eating disorders may be an issue for some members of your group. It may be appropriate to have some of the activities in this unit be independent exercises as opposed to sharing with the entire group. Modify the activities as necessary to meet the needs of your group. If the group has not discussed potentially sensitive issues before, it may be wise to begin the unit with setting ground rules for a supportive discussion, and letting students know that if they feel uncomfortable they can speak with you privately.

Activity 1: Food in Your Life

Driving Questions

What role does food play in your life?
What meaning does food have to you beyond "fueling" your body?

Time Estimate
30 minutes

Learning Objectives

Explain the role that food plays in their life and the meaning food has to them

Materials

- blackboard/whiteboard/chart paper to document discussion

Procedure

- Lead a discussion about what food is and the role it plays for students. Some prompts might include: What is food? Why do you eat it? What role does food play in your life? What is important to you about food? Why do you like some foods and not others?
- What do the following terms mean to you? What foods do you associate with each?
  - Health food
  - Comfort food
  - Junk food
  - Favorite food
- Discuss as a group. Create a class definition of each of the terms above. To visually represent the conversation, create diagrams with each term (for example, "health food") in the middle, and around it, pictures or words representing the different foods that the class associates with the term.
- As an independent assignment or pair conversation, have students consider more deeply what is important to them about food. What are your food values? What foods are most important to you, ones you would be upset if you were told you could never eat them again? Why are they so important to you? Do you ever think about where your food comes from or how it gets to you? If so, what have you thought about? If not, why not?
- As an independent assignment, have students write poems about their food values.

Activity 2: Last Night's Dinner

Time Estimate
50 minutes

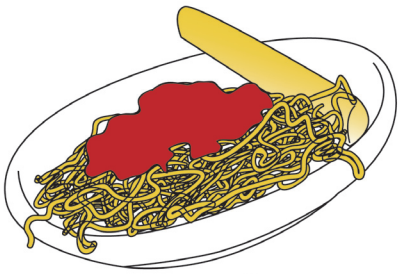
Driving Question

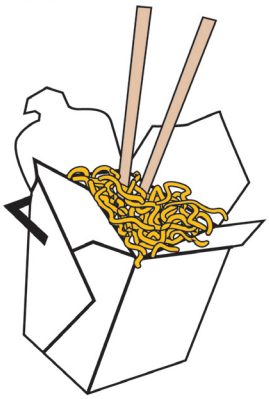
What is a food culture? What is your food culture?

Learning Objectives

Describe their own and someone else's food customs and habits

Materials





- paper and pencils
- blackboard/whiteboard/chart paper
- access to library, computers with internet, or books on food cultures for research

Time

Total 50 minutes, plus 5 minutes for each group presentation.

- Group discussion: 15 minutes
- Group research: 20 minutes in class
  (will vary depending on resources available in the classroom)
- Presentations: 5 minutes per group
- Individual assignment and discussion: 15 minutes

Procedure

- Write the following on different sections of the board:
  - Italian Food
  - Chinese Food
  - Indian Food
  - Southern Food
  - Mexican Food
  - (or choose other food cultures that you think your students may have stronger associations with)
- Ask students what they think of when they think of each of these terms. Write their responses in the appropriate section. Students may think of food items (spaghetti, tacos, etc) or related items (chopsticks, etc).
- Discuss food culture. Food culture encompasses what we eat, how we eat it, who prepares it and how, and who it is eaten with. Different regions around the country and around the world have different and unique food cultures. Why? (Why relates to climate, culture, availability, among other things. Encourage students to think about the big picture.)

- Divide into groups of 3-4. Assign or have each group choose a part of the country or of the world (remember that the U.S. has food cultures too!) and research the food culture. Each group should then present the food culture to the class. Some questions for groups to consider:
    - What type of food is typically eaten?
    - Who prepares the food?
    - How is it prepared?
    - Who eats together?
    - What do everyday and festive meals look like?
    - Are there any special customs surrounding food? (who eats first, prayers, giving food to the hungry, giving food to the gods, etc)
    - Create a menu for a meal in this food culture, explaining the significance of all the dishes in the meal.
- As an individual assignment, have students describe, in words and/or pictures, a recent meal in their home or family (say, last night's dinner) and the food culture surrounding it. See note above regarding sensitivity to food security issues. Below are some prompts to consider:
    - What did you eat?
    - How did you eat it?
    - Where did you eat it?
    - Who did you eat with?
    - What did you talk about?
    - Who prepared the meal?
    - Where did the elements of your meal come from?
    - Was this a typical meal for you? Explain.
- Pair and share, if appropriate for your group.
- Discuss the similarities and differences among students' meals – what might this tell us about food cultures? Do different students interact differently with the food system?

Connecting to Community: NYS local foods

Utica chicken riggis
Buffalo chicken wings
Brooklyn bagels
New York pizza
Finger Lakes grape pie

Related Links

This photo essay shows the food eaten over a week by various families around the world. Photos are from, *Hungry Planet: What the World Eats*. By Peter Menzel and Faith D'Aluisio. 2005. Material World Books. http://www.time.com/time/photogallery/0,29307,1626519,00.html

Activity 3: Digging Deeper into Last Night's Dinner

Time Estimate
30 minutes

Driving Question

Where did your meal come from?

Learning Objectives

List some of the steps that make a meal possible

Materials

- blackboard/whiteboard/chart paper

Procedure

- Refer to the meal described in Activity 2.
- Starting individually, students should consider other people who may have been involved in the meal. How did each component or ingredient of it get to the table? This is an opportunity for students to think about all the different foods that go into a meal, where each might have come from, and how it became part of the meal. At this point, students shouldn't be researching this information; rather they should be thinking about these ideas using their own knowledge and educated guesses.
- Pair and share. What did your partner think of that you didn't and vice versa? Why? Together, can you think of any additional people or factors?
- With the whole class, ask for one or two volunteers to describe their meal. Ask students to identify other people who were involved in making this meal and how the ingredients got to the table. Keep pushing and ask students to think of the next step back. Some guiding questions:
    - Where do the ingredients in this food product come from?
    - How were they grown?
    - What was done to the ingredients to make the food look or taste this way?
    - What was added to make this product?
    - Was there a container? Where did it come from? What did you do with the container when it is empty? Example: Did you throw it away? If so, where does it go? A landfill? Can it be re-used, recycled, was it burned? etc.
    - Was there any food that was not eaten? What did you do with it?
- After the discussion, ask students to individually consider their own meal again, and add steps or people they may not have thought of initially.
- As an individual assignment have students select another meal they had outside of school, and describe the people and steps involved in getting the meal to the table. This could be done as a written narrative, flow chart, comic strip, song lyrics, or something else!

Food for Thought Journal

Does your family have a “secret recipe”? If so, what is it, and why is it important to your family?

What foods are part of your family’s traditions? (This could be related to where your family is from, but also something simple, like having roast chicken for dinner every Sunday)

Describe the food culture in your family. Again, this might be related to your family’s heritage but may also be specific to your immediate family. In your family, what is important about food?

If you could have anything for dinner tonight, what would it be? Describe your ideal meal. Draw a picture of it, if you like. What can you infer about your food culture from your ideal meal?

Going Further

Interview a family member (parent, grandparent, etc) about how they ate when they were your age. Did they eat different foods than you do? Did they cook or eat in a different way than you do now?

Have each member of the group bring in a food that is traditional in his/her family. Compile a cookbook of special family recipes.

Have a family member come in and cook a family recipe with the class.

Have students begin keeping a food journal, including what they eat, in what context, what cultural significance it may have, how they think it might fit into the food system, etc. This could be a short- or long-term assignment.

Assessment Ideas

Portfolio: Starting with the individual assignment at the end of Activity 3, add a paragraph or explanation of your family’s food culture, and how the meal does or does not fit.

Quiz suggestions:

- Write a paragraph explaining the role food plays in your life.
- Briefly describe the customs and habits that make up your food culture.
- Imagine two people who have different food cultures than you.
    - For each person, state where they are from, and at least 4 things about their food culture.
    - Describe how each of their food cultures is similar to or different from yours.
- List some of the steps that make a meal possible.

Unit 2: Food System Basics

NY State Learning Standards
English Language Arts 4
Social Studies 4

Getting to the Core: Apples in our Food System

We can find apples at every stage of the food system:

Production: Apples grow on trees in orchards.

Harvest: Apples are harvested by hand. In the United States, apples are often picked by migrant or resident farm laborers from Mexico and Latin America. Ladders may be used in order to reach all of the apples. The pickers will fill bags that are attached to their ladders and lower them into boxes being towed with a tractor.

Washing, grading and waxing: Apples are washed, sorted according to size and quality, and waxed to make them shiny and preserve moisture.

Introduction

Although we participate in the food system each day by eating, most of us do not often think about how food gets from field (or body of water) to table. Even young people from rural areas are increasingly becoming removed from their local food system.

This unit will help students develop an understanding of the food system by building on their prior knowledge and experiences. Students will begin by creating a list of steps in the food system and developing a working model. Then they will follow the path of a food item from farm to table. In the third activity, students will consider the activities or processes that occur within each step in the food system and the people involved in each. This activity will help students think more critically about how the food system impacts their community.

Learning Objectives

- Identify and describe steps in the food system.
- Draw a model of the food system.
- List several activities that occur at various steps in the food system.
- Describe how various people participate in the food system.
- Discuss the impact of the food system on their community.

Key Concepts

- **Systems**
- **Interdependence**
- **Food System**
- **Models**
- **Community**

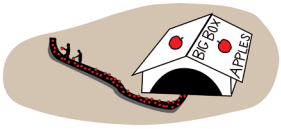
Background

This unit will help students to identify major activities in the food system and to consider how they operate to bring food to the table, as well as community members who may participate in these activities.

The steps in the food system are presented below in a typical order. However, they may occur in a different order, and some steps may be skipped. Students may also be able to think of additional steps not listed here.

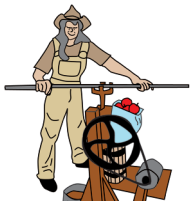
Some of the steps in the food system include:

- Production involves many of the activities that take place on a farm, at an orchard, in bodies of water, or in greenhouses and fish-farm tanks to produce

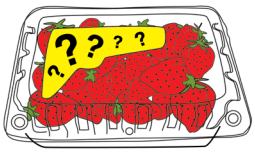


Storage: Apples are typically packed into 40-pound cartons.

Distribution: If not sold locally, a buyer arranges for shipment and a trucking company is contracted for shipment (4-5 days from Washington State to the East coast, for example). Temperature-controlled trucks travel 2,800 miles from Spokane, WA to Maryland.



Processing: Not all apples are sold as fresh fruit. Apples can be canned, made into pie filling or applesauce, or added to many different products. How many food products can you think of that contain apples?



Packaging: The packaging of apples depends on how the fruit is sold: fresh and whole, or as part of a food product. Fresh apples are often sold loose, but sometimes in bags; applesauce may be sold in jars; apple pie may be packaged in a box.

our food. Food production depends on the "input" of several resources, both natural (soil, water, climate, seeds, and human labor) and human-made (machinery, fuel, fertilizers, pesticides).

- Harvest is the collection of raw food (fruits, vegetables, meat, milk, etc.) from its source (plant or animal). Harvesting may be done by hand or by machine. Mechanical harvesters harvest most grain and cereal crops in the U.S. Some of the inputs required for this step are human labor, fuel, raw materials, equipment, and packing materials.

- Storage refers to keeping for future use. Storage is required for all food not eaten soon after harvest. Different crops can be stored for different lengths of time. At home, people store food in refrigerators, cupboards, pantries, etc. The inputs required for storage include energy to maintain a cool environment, gases, packaging, buildings and land.

- Distribution is the process of dividing up and delivering food to various places. Foods are taken from their original sources and delivered to supermarkets, other food stores, or farmers' markets for sale as a whole fresh product. Alternatively, farm products can be transported to a site where they will be processed (see below) and then re-distributed. Most of what we find in grocery stores today has been transported great distances. Food is currently transported by truck, train, boat, and plane. Inputs include fuel and labor.

- Processing involves changing the structure, composition, character, or condition of food. Much of the food we eat has been transformed in some way before we eat it. Think of the bread on your sandwich, the juice you had with breakfast, tomato sauce and the pasta is covers, or the cheese you had on a cracker (and the cracker itself!). During processing, food is changed in order to enhance flavor, make it last longer, or create new products altogether. Processing means we can eat foods at times or in places where it might not otherwise be available. There are many different ways to process a food. Turning fresh strawberries into jam, making juice from fresh apples, pre-cutting and cooking potatoes for frozen French fries are all ways to process food. Processing may include drying, cooking, freezing, canning, or adding preservatives. Processing may increase or decrease nutritional content: minimal processing maintains or enhances the nutritional quality of the food; ultra-processing may diminish nutritional quality. Depending on the type of food and processing technique, a variety of inputs are necessary for this step in the food system. Some of them are labor, machinery, water, fuel, and sugar, salt and other preservatives.

- Packaging helps protect food from spoilage and allows for easy transport and purchasing. Almost everything we purchase at the grocery store is packaged in some way. Strawberries are put into quart containers, bread is packaged in plastic or paper bags, pasta is kept in cardboard boxes, etc. Packaging can also provide a place for advertisement of the goods contained within. Some of the inputs necessary to make packaging are paper, plastic, cardboard, aluminum, glass, ink, and machinery. Packaging may also be a component of marketing (see below).

Retailing: Apples can be bought through a variety of sales channels, such as a grocery store, a farmers' market, or straight from the orchard.

Cooking: Apples of course can be eaten without any cooking – right from the tree! But they also can be baked whole or in pies and other pastries, made into sauce, or made into a fruit salad.

Consuming: Apples can be eaten with the peel or without, whole or cut in pieces, fresh or cooked. Yum!

Disposing, Composting and Recycling: Apple cores can be composted! If apples come in a package, the package needs to be disposed of or recycled.

- Marketing, Sales and Purchasing is the process of determining, catering to, and even creating consumer wants or needs. Advertising is sometimes used to create the illusion of need in an effort to get people to buy a product. Marketing teams determine what people want and how to make food appealing to consumers. Advertising of food can occur in print, billboards, TV, and other media. The inputs for this step in the system are labor and time, in addition to physical advertising and packaging.

- Retailing is selling food to the consumer. Food can be sold through businesses such as grocery stores or restaurants. Another way of retailing is by the farmer directly to the consumer, such as in a farmer's market. Some of the inputs needed for retailing may include transportation, packaging, fuel, and labor.

- Cooking can happen in a variety of settings: at home, at restaurants, or in institutional kitchens that feed hundreds of people. The inputs needed for cooking depend on what is being done with the food. Some inputs may be water, heat, fuel, various appliances, and time and labor.

- Consuming refers to purchasing or eating food. Consuming requires having access to food, which includes food being available and having the resources to acquire it. The primary input for this step is financial, since we pay for the food item and all of the activities required in bringing the food to our table.

- Disposing is what we do with anything left over after eating food. Disposing can include garbage, composting, and recycling. Some food that is purchased, cooked and served as part of a meal is not eaten and instead is thrown out. This food can go into the garbage or can be made into compost. Food packages are also disposed of - they may go to a landfill or they can be recycled. Food packing materials such as paper, cardboard, plastic, aluminum, glass and tin can be recycled in many communities. Inputs for this step include land (for landfills, composting, or recycling facilities), transportation, labor, and machines.

Activity 1:
Modeling the Food System

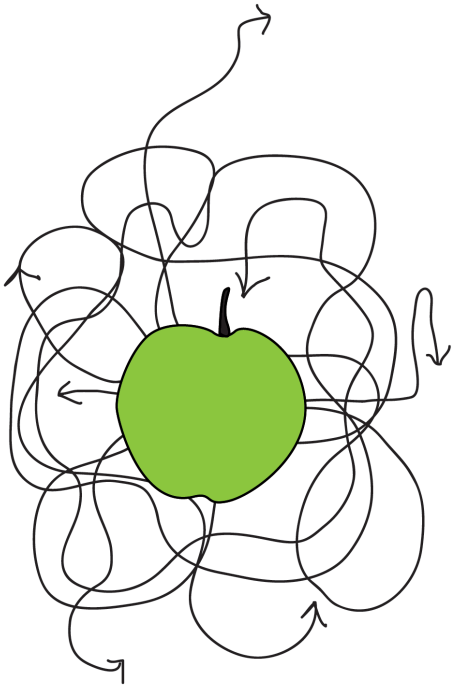
Driving Questions

What are the steps in the food system? How are they related?

Time Estimate
30-40 minutes

Learning Objectives

- Identify and describe steps in the food system.
- Draw a model of the food system.
- List several activities that occur at various steps in the food system.



Materials

- markers; blackboard/whiteboard/chart paper
- cut-out photos from "Getting to the Core" (or other pictures of steps in the food system)

Procedure

- Refer to the work done in Unit 1, Activities 1 and 2.
- Use this preliminary thinking to create a list of steps in the food system. This may be done in small groups or as a large group.
- As a large group, come to a consensus as to the steps of the food system.
- How are these steps related to one another?
- Hand out the pictures (cut out from "Getting to the Core" or that you have collected). What steps that the group has discussed do these pictures represent? The group may choose to revise its list of steps at this point.
- In small groups, have students arrange the pictures of the steps in an order that makes sense to them.
- Each group should share its arrangement with another group or with the class as a whole. What similarities or differences are there among the orders created? Does everyone agree on how the steps in the food system fit together? Do the steps agreed upon always occur in this order? How else might you arrange them? Is it always a linear process?
- Discuss models. Models are a visual way for us to conceptualize something complex to help us understand it better. The food system is complex, but students have just sketched out their understanding of some of its elements. Now they can put them together.
- Using the large paper and markers, create a preliminary model of the food system, based on your understanding up until now. This could be as a large group, or could be done in small groups and shared with the rest of the class. Keep the model(s), to refer to later; we will use them throughout the rest of this curriculum.
- For older students, share the models of the food system from Food Systems 101 in this curriculum. Have them compare their models with these models, and write a comparison and critique.

Activity 2: Food Path

Driving Question

How does a given food travel through the food system?

Time Estimate
20-40 minutes

Learning Objectives:

- Identify and describe steps in the food system.
- List several activities that occur at various steps in the food system.

Materials

- "Getting to the Core: Apples in our food system," above
- students' food system models created in Unit 2, Activity 1
- internet or library access for research

Procedure

- Having identified the steps in the food system, students can apply their understanding by following one item through the food system.
- As a group, review "Getting to the Core: Apples in our food system." It considers how apples travel through the food system, and what happens to them at different points in the food system.
- Review the model(s) created in Activity 1.
- Choose a food item and follow it through the food system, using the model created in Activity 1 for guidance. (Depending on the food item selected, and students' background knowledge, this activity may take some time and research.) What happens to the food item at different points in the food system? Does this food item participate in all the elements you included in your model?

Related Links

Alberta Egg Producers: From Farm to Table – Traces the path of eggs from the chickens to your home. It has a bit of a promotional tone to it, as it is written by the Alberta Egg Producers, but it has some information on the elements of egg processing that are "invisible" – the processing and packing. http://www.eggs.ab.ca/egg_industry/farm1.htm

Feeding Minds Fighting Hunger Lesson on Food Systems – A lesson plan focusing on the path of tomatoes through the food system. There are versions of this lesson for elementary, intermediate, and secondary levels.
http://www.feedingminds.org/level2/int_level_en.htm There is a useful chart associated with this lesson, http://www.feedingminds.org/level2/int_level_en.htm.

French Fries and the Food System: A Year-Round Curriculum Connecting Youth With Farming and Food – Food system activities from The Food Project, organized by season.
http://thefoodproject.org/books-manuals

Activity 3:
People in the Food System

Driving Questions

Who works in the food system?
How does this impact my community?

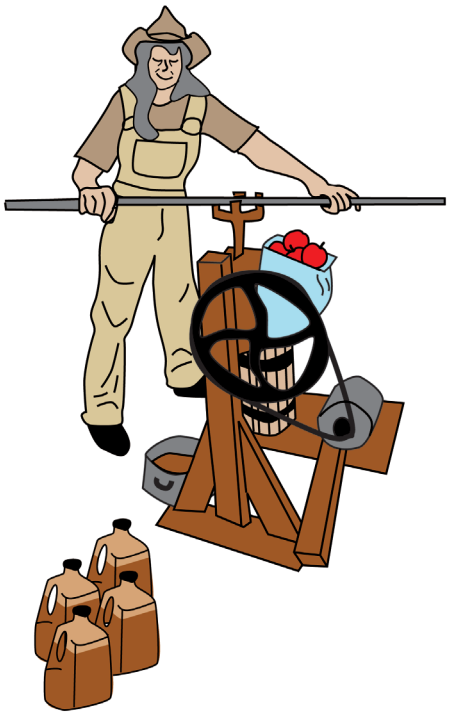
Time Estimate
25 minutes

Learning Objectives

- List several activities that occur at various steps in the food system.
- Describe how various people participate in the food system.
- Discuss the impact of the food system on their community.

Materials

- food system models created in Unit 2, Activity 1



Procedure

- The last activity focused on food system processes; now we will consider the people that make these processes occur.
- Refer back to the model(s) created in Unit 2, Activity 1.
- Think of specific activities involved in each component of the model.
- Using the model(s) as a guide, add people to your discussion of the food system. Discuss the people involved in each of these activities. Some may be abstract (e.g. a lettuce grower in California), but others may be local individuals whom students know. As a group, create a list of all the people the group knows who are part of the food system.
- What do you do to participate in the food system? Have students write individually about ways they participate in the food system. Depending on the students, this may be as simple as "eat" but in some communities, there may be students who work in a grocery store or restaurant, or who come from farm families, or may have done a project in a lab, or in some other way be more involved in the food system. Purchasing food in the grocery store or eating out are other ways students might participate in the food system. Whatever their situations, it is important for students to recognize that, whatever their daily lives, they participate in the food system, as do members of their families and communities.
- Make a list on the board of different ways the students participate in the system. Tally how many students participate in the different ways (how many buy food at grocery stores, how many work in the food system, how many eat) to get a picture of the group involvement in the food system.
- Discuss how the food system impacts their community.

Related Links

The Color of Food – Findings of a broad survey of the food system to map out the race, gender, and class of workers along the supply chain. http://www.arc.org/content/view/2229/136

Activity 4:
Farms and Farmworkers

Driving Questions

What types of farms are there?
How do farms and farmworkers fit into the food system?

Time Estimate
20 minutes

Learning Objectives

- Describe how various people participate in the food system.
- Discuss the impact of the food system on their community.

Materials

- "Last Night's Dinner," from Unit 1, Activity 2, if desired

Procedure

- In Activity 3: People in the Food System, we discussed various people involved in the food system; Activity 4 focuses on farms and those who work on them.
- Start by asking, "Who ate something for breakfast/lunch that came from a farm?" If you get blank looks, ask about someone's breakfast, volunteer your own, or have students use their "Last night's dinner" from Unit 1. Have students think about which parts of the meal may have come from a farm (and how).
- Discuss the fact that farms are central to the food system. In fact, without farms, we would have very little food! Civilization only became possible with the cultivation of food.
- What types of farms do students know about? Farms can be big or small, "organic" or "conventional," family farms or corporations or cooperatives, and may focus on animals, vegetables, even fish! See "Resources" for information on various types of farms. All these types of farms have a similar goal: to raise food (or fuel or fiber, but here we are considering food) to sell to consumers.
- Have students brainstorm what type of work they think needs to be done on a farm. Who works on farms and what do they do? If some in the group come from farm backgrounds, or know farmworkers, they can share with the group.
- Talk about the regularity of farmwork. You might compare it to schoolwork, which youth are familiar with: There is ongoing homework, but sometimes you have tests or big papers due, and sometimes several at once, and then there is summer vacation, when most students have no school work at all. Farmwork is similar. However, when it gets especially busy on the farm, the owner may hire extra workers to help out.
- Explain that some people make their entire living travelling from farm to farm, doing this extra work. These are called migrant farmworkers. On the one hand, there is always work for them, but on the other, they often have to travel to get to it. Migrant farmworkers move frequently from farm to farm, and from town to town, rather than living in one place for a long time. They typically do not make very much money.

See Related Links, below, for more information on migrant farmworkers.

- Explain that fair trade is a movement designed to try to pay farmworkers (both migrant and non-migrant) a living wage for their production work.
- Have students complete the Farms Worksheet.

Related Links

Climate:

Climate and Farming – This site provides resource materials that help farmers make practical and profitable responses to climate changes. Subjects include an overview of climate science and indicators of climate change in the Northeast, effects on crops, livestock, weeds, pests and pathogens, and cost-effective strategies for farmers to reduce greenhouse gas emissions and enter the renewable energy marketplace. http://www.climateandfarming.org

Fair Trade:
Fairtrade Labelling Organizations International – Overview of fairtrade and links to fairtrade producer networks and labeling organizations around the world. http://www.fairtrade.net

Global Exchange – Education and action for social, environmental and economic justice. Fair trade is one of the alternative economic systems they promote. http://www.globalexchange.org/index.html

Fair Trade Concepts – An educational site on fair trade and economic justice.
http://www.fairtradeconcepts.com/fairtrade.html

United Students for Fair Trade – USFT is a national network of student organizations advocating around Fair Trade principles, products, and policies. In addition to facilitating networking, the "learn" portion of the website provides information on Fair Trade. http://www.usft.org/learn

TransFair USA – TransFair USA, a non-profit organization, is the only independent, third-party certifier of Fair Trade products in the U.S. and one of 20 members of Fairtrade Labelling Organizations International (FLO). http://transfairusa.org

Fair Trade Resource Network – an information hub designed to grow the fair trade movement.
http://www.fairtraderesource.org

Domestic Fair Trade Association – The Domestic Fair Trade Association is a collaboration of organizations representing farmers, farmworkers, food system workers, retailers, manufacturers, processors, and non-governmental organizations that works to support family-scale farming, to reinforce farmer-led initiatives such as farmer co-operatives, and to bring these groups together with mission-based traders, retailers and concerned consumers to contribute to the movement for sustainable agriculture in North America. http://www.thedfta.org

Farms:

Cornell Small Farms Program
http://www.smallfarms.cornell.edu

Farming in Saskatchewan – Types of farms in Saskatchewan (and the prairie states). Although written specifically for the province of Saskatchewan in Canada, the ideas and information can apply to other areas as well. http://www.saskschools.ca/~gregory/sask/farms.html

Migrant Farmworkers:

Cornell Farmworker Program
http://devsoc.cals.cornell.edu/outreach/cfp

Migrant farmworker communities in the US
http://www.migranthealth.org/farmworker_communities/farmworkers_in_us.php

Migrant Farmworkers: Our nation's invisible population
http://www.extension.org/pages/Migrant_Farm_Workers:_Our_Nation%27s_Invisible_Population

Justicia for Migrant Workers
http://www.justicia4migrantworkers.org/index.htm

BOCES Geneseo Migrant Center
http://migrant.net

The Vermont Migrant Farmworker Solidarity Project
http://www.vtmigrantfarmworkersolidarity.org

http://www.jmolds.k12.nf.ca/Web%20files/migrantfarmworkers.html

Inventory of Farmworker Issues and Protections in the United States
http://bamco.com/uploads/documents/fwi_execsum_mar31_2011.pdf

Name: _____

Farms Worksheet

List three types of farms and what they produce:

Farm Type	What does it produce?	What makes it different from the others?

What is something that you ate recently that came from a farm?

What kind of farm do you think it came from?

Explain how farms fit into the food system.

Food for Thought Journal

What have you learned so far about the food system? What has surprised you about what you have learned? What do you still want to know about the food system?

Going Further

- Read *Strawberries: From Farm to Table*. Discuss….
- Compare the path of a pizza to the path of the strawberries in the above story. Are there steps that are in one but not the other? Is one more complex than the other?
- Visit a farm – remember that there are many types of farms, and farms can be rural, suburban, or urban
- Visit a food processing plant
- Visit a wholesale distribution location
- Invite a farmer to visit the group
- Invite a food processor, retailer, or other person involved in the food system to visit the group

Assessment Ideas

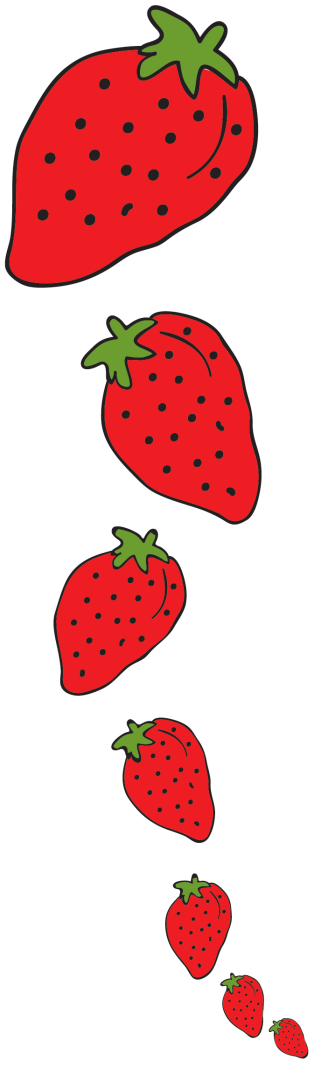
Portfolio: Draw a model of the food system. For each step:

- Name the step.
- List several activities that occur during that step.
- Describe how people can participate in that step.
- Choose one (or more!) food item and trace the path it takes through the food system on your model. For each step:
- Describe the state the food item is in at that step (fresh, ground, cooked, etc).
- Describe what will happen to the food item during that step.
- On your model, indicate in which steps you or people in your community participate. For each step:
- State who participates in that step (you, your family, your friends, other community members you know).
- Explain how participating in that step impacts the people you know.

Quiz suggestions:

- Draw a model of the food system. For each step:
    - Name the step.
    - List several activities that occur during that step.
    - Describe how people participate in that step.
- List three ways your community participates in the food system, and the impact each way has on your community.

Strawberries: From Farm to Table



If ever there were a taste of summer, the strawberry would be it! The strawberry is one of the most popular small fruits in the United States. The average American eats 6 pounds of strawberries each year. Not only does this fruit taste good, it is good for you. Strawberries are good source of vitamin C and contain no fat. Strawberries can be found fresh, or processed into juices, jams, jellies, or frozen whole or sliced for use in ice cream, yogurt and toppings. How many ways have you eaten strawberries?

Most strawberries produced in the United States are grown as **annuals** (plants that are planted each year and last for one **season**) in California and Florida and then shipped to supermarkets all over the country, allowing people to eat fresh strawberries from January through September.

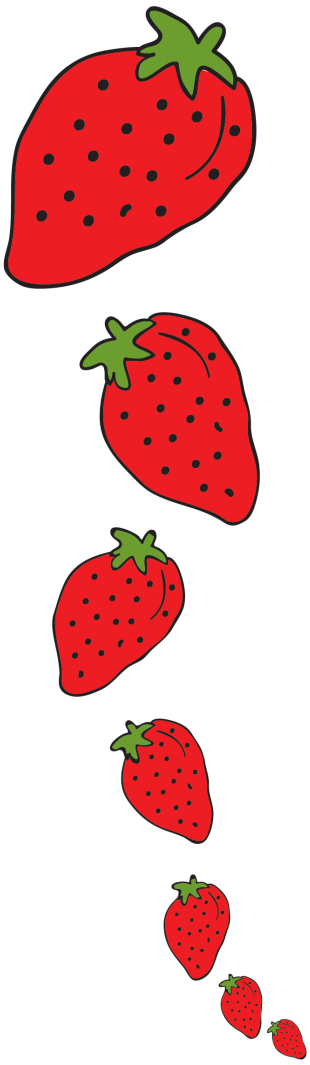
In the Northeast, strawberries are generally grown as **perennials**; they will bear fruit for several years before being replaced with new plantings. Strawberries grown in the northeast are usually sold locally as fresh berries. There is a "**season**" for strawberries in our region: the fruits ripen over a three- to five-week period beginning in late May and ending mid-June. The precise length of the strawberry season will vary depending on the location and that year's weather. Most farmers who grow strawberries produce other fruits and vegetables as well, because the strawberry season is so short. Farmers who grow only strawberries have to make all of their income from farming in a few weeks each year!

On a **conventiona**l farm, strawberry production can involve inputs of synthetic herbicide (for weed control) and a synthetic nitrogen fertilizer. Weeds are a problem mostly in June, July and early August of the year the plants are planted. Since plants will not produce much fruit without sufficient nitrogen, on an **organic** farm, other crops are planted on the field when strawberries are not planted and manure is used to fertilize the soil.

Labor costs tend to be higher in organic production, but chemical (herbicides, pesticides and fertilizers) costs are likely to be lower. Fewer berries also tend to be produced. Organic strawberry production can be as profitable as conventional production if the price of the organic fruit is about 30% - 40% higher than conventional. Many people are willing to pay more for organic strawberries because they feel the taste, health, and environmental differences are worth it.

Strawberries can also be grown in controlled environments for off-season production. These can be plastic tunnels over raised beds in the field or full **greenhouses**. Greenhouses may be heated.

Strawberries are extremely perishable. That means they ripen quickly and spoil quickly after harvest. They maintain quality for only a few days at room temperature (that's the strawberry's **shelf life**) and about a week refrigerated – depending on the variety. Once ripe strawberries are picked, they need to be handled carefully, kept cool, and transported quickly to a processing facility or to where they will be eaten.



If a berry is picked before it is fully ripe it will have a longer storage and/or shelf life than those harvested at the fully ripe or overripe stage. Have you seen strawberries with white tips? These not-yet-fully-ripe berries will retain their firmness longer than those harvested fully ripe (making them better long-distance travelers) and will lose less water during storage. Sounds good, doesn't it? But, the downside is that these berries usually do not develop the same intense flavor as fruits harvested at the fully ripe stage. Because berries ripen so quickly, frequent harvesting – every two days – is critical.

Berries headed for the fresh market (store or farmers' market where they are sold as fresh whole fruit) are placed into commercial containers. Containers can be made of pulp (inexpensive but stain easily), wood (also stain and are expensive), clear plastic (reduce moisture loss but juice can gather in the bottom), or colored plastic.

To maintain quality after harvest, berries must be stored at low temperatures, with high carbon dioxide and low oxygen levels. Cooling – and quickly! - is probably the most important step to take after harvest to maintain good quality. This is critical for berries that will be transported great distances. Forced-air cooling is the most frequent method used. This involves blowing cold air across the fruit. Large producers may have a forced-air cooling facility specifically designed for removing field heat. Smaller forced-air units can be created with a small walk-in cooler and a few fans. Regardless of size, cooling with forced air requires resources and uses energy to do the cooling. Remember, strawberries are very fragile and need to be handled carefully at every step along the distribution chain from farmer to consumer. The fewer steps, the less loss of fruit. The average total loss of strawberries between harvest and the consumer's table is estimated to be more than 40%! A 14% loss occurs from farmer to wholesaler, a 6% loss from wholesaler to retailer, and a 22% loss occurs from retailer to consumer. These losses can be decreased with good handling practices.

If the berries are to be transported great distances, say from California to New York State, many steps are involved. After the berries are transported from the field and pre-cooled, the flats (the wooden crates in which pint-sized cartons of strawberries are placed for transport) might then be wrapped in plastic, loaded in a refrigerated truck, transported to a distribution center and unloaded into a warehouse. At some later time, they would be loaded into a truck, transported to a retail store, unloaded and stacked in the back room, and finally set up on the produce display for sale. Of course, if a farmer plans to sell the berries directly to consumers at a nearby farmers' market, the berries will be picked and placed directly into cartons, kept cold overnight, loaded onto a smaller truck along with other products and transported to the market the next morning. Other marketing options include customer harvest (**U-pick**) and processed, or value-added, products (frozen, jams, jellies, etc.).

As this story reveals, there are many steps involved in getting strawberries from a farmer's field to your table! And the path can vary quite a bit.

Source: Pritts, M. and Handley, D. (Eds.). 1998. Strawberry Production Guide for the Northeast, Midwest, and Eastern Canada. Natural Resource, Agricultural, and Engineering Service. Cooperative Extension. 152 Riley-Robb Hall, Ithaca, NY 14853-5701. 162 pages. NRAES-88; ISBN 0-935817-23-9.

Unit 3: Global and Local

NY State Learning Standards
English Language Arts 4
Social Studies 3, 4
Mathematics, Science, and Technology 3, 7

Getting to the Core

Apples are grown in many different parts of the world; over 50 million tons of apples are grown each year worldwide. In the grocery store you may find apples from a nearby orchard or all the way from New Zealand. Washington State produces 60 % of apples grown in the United States (5.65 billion pounds in 2010); the next biggest producer is New York State (1.2 billion pounds in 2010).

Source: http://www.nass.usda.gov/Statistics_by_State/Washington/Publications/Current_News_Release/appleaug.pdf

Introduction

The foods we eat connect us to a food system. One can eat an apple from a neighboring orchard or an apple from New Zealand. The goal of this lesson is for students to become familiar with the local and global aspects of our food system. The first activity will help define the terms “local,” “regional,” and “global.” Students will then consider the differences in energy consumed in local and global food systems. Other ideas are offered in the Going Further section.

Learning Objectives

- Explain the differences between local and global food systems
- Compare the benefits and drawbacks/challenges of local and global food systems
- Understand the seasonality of food
- Understand the role of energy in the food system
- Describe the impacts of transporting food

Key Concepts

- **Local Food System**
- **Global Food System**
- **Regional Food System**
- **Season**
- **Food Miles**
- **Costs**
- **Foodshed**
- **Foodprint**

Background

Food systems are often characterized as, “local,” “regional,” and “global.” The distinctions between these different systems are based on the distances between the sources of the food (where it is grown, raised or caught) and the place where it is consumed. Note that these distances are relative, not absolute. Also, local may mean something different for someone in a large city, versus a small, diversified farming community, versus a large, sparsely populated Western state. Another important distinction between these systems involves the hidden costs and benefits of each that may not show up in the price we pay for food. For example, the global system uses anywhere from 4 to 7 times as much energy (fuel to transport the food), and produces 5 to 17 times more carbon dioxide than a regional or local food system. Local food systems benefit the local economy by keeping food-related businesses in the community, by employing residents of a community, by keeping local farms in business, and by keeping the rural landscapes agricultural.

A “community” food system emphasizes relationships between people in different sectors in the food system – farmers, processors, distributors, and consumers, for example. (See Food Systems 101 for more information on these types of food systems.)

The distribution of farms and agricultural businesses around the world has shifted to places where food can be produced cheaply; food is then sold on the global market. This global system has enabled production to increase to meet the demands of the population. Local food systems can be participants in the global food system. The issues surrounding the globalization of our food system are complex and extensive. There are significant benefits to our global community while our local communities may experience some drawbacks.

In the past 50 years there has been a significant increase in fossil fuel use around the world. In the U.S., one factor in this increase is the use of fossil fuels for producing and transporting food. In 1965, there were 787,000 combination trucks registered in the United States, and these vehicles consumed 6.658 billion gallons of fuel. In 2003, there were 2,245,085 combination trucks that used 26.9 billion gallons of fuel. Many of these trucks transport food throughout the country. The Center for Agricultural Business found that more than 485,000 truckloads of fresh fruit and vegetables leave California every year and travel from 100 to 2,100 miles to reach their destinations.

Food miles refer to the distance food travels from where it is grown or raised to where it is eaten. Several studies have estimated that fresh produce in the United States travels an average of 1500 miles before it is consumed. An analysis of the USDA Agricultural Marketing Service’s 1997 arrival data from Jessup, MD, found that the produce they distributed had traveled on average more than 1685 miles, with the average distance for fruits being 2146 and the average for vegetables 1596 miles.

Activity 1: Introduction of Terms

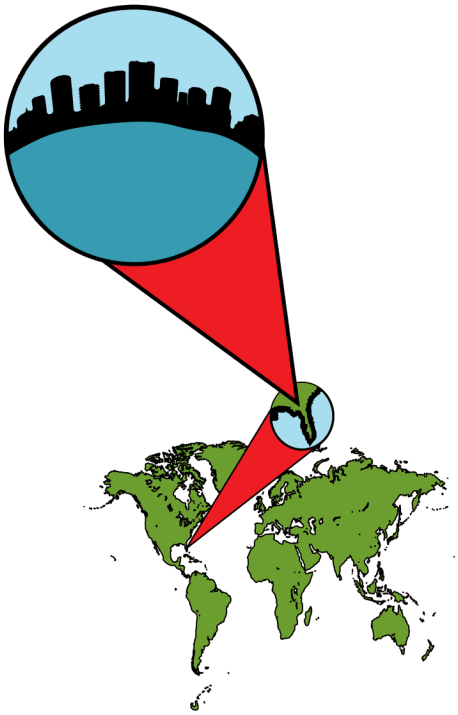
Time Estimate
40 minutes

Driving Question

What are local, regional, global, and community food systems?

Learning Objectives:

- Explain the differences between local and global food systems
- Compare the benefits and drawbacks/challenges of local and global food systems



Materials

- blackboard/whiteboard/chart paper

Procedure:

- Begin this activity by discussing the terms Global, Regional, Local and Community. Note that these terms are relative, and different people may have different opinions. Some guiding questions include:
  - What does the term “local” mean to you?
  - What is your local area?
  - What makes a food a local food?
  - What does the term “regional” mean to you?
  - What region do we live in?
  - What might make a food a regional food?
  - What does the term “global” mean to you?
  - What might make a food a global food?
  - What does the term “community” mean to you?
  - What is your community?
  - What might make a food a community food?
  - When you eat an orange, where did it come from?
- Based upon the discussion students have just had about the terms, explain that food systems can be local, regional, or global, depending on how far the food travelled to reach the consumer. Explain that the distances are not absolute, but relative, and dependent on circumstances. Community food systems are similar to local food systems, but place a greater emphasis on the needs of the community and on relationships among the players in the food system.
- Optional: If youth feel they need absolute numbers to distinguish the types of food systems have them work together as a group to decide what constitutes local, regional, global, and community, in your area.
- Next, consider the benefits and drawbacks of each type of food system. You can do this as a large group, or break the class into smaller groups and have each group focus on one type of food system. Things to consider include food quality, economic impact, environmental impact, who benefits and who does not, how the food system impacts your community. The following worksheet

may be used to guide small group work.

- As a follow-up, have each small group create a marketing campaign to convince the class that "their" type of food system is best. Alternatively, have each small group present the pros and cons of "their" system to the rest of the group.

Related Links:

Local Harvest – A website of resources for locally sourced foods. Discusses methods of accessing local foods, including a database of farms and farmers markets around the country. http://www.localharvest.org

Eat Local Challenge – A group blog focused on eating locally – including reasons to eat local and individuals' experiences with local food around the country. http://eatlocalchallenge.com

Food Routes – Food Routes Network provides communications tools, technical support, networking and information resources to organizations nationwide that are working to rebuild local, community-based food systems. FRN is dedicated to reintroducing Americans to their food – the seeds it grows from, the farmers who produce it, and the routes that carry it from the fields to their tables. http://www.foodroutes.org

Redefining Progress – A public policy think tank focusing on economics that considers sustainability and social justice. Click on the Educators tab for lesson plans and classroom resources on sustainability. http://www.rprogress.org

Local Foodshed Mapping Tool for New York State – The Local Foodshed Mapping Project investigated the capacity of agricultural land in New York State to meet the food needs of the state's population centers. The Local Foodshed Mapping Tool is an internet map server (IMS) that provides a means for interactively exploring results from this study. http://www.cmapping.cfm

Cool Foods Campaign – The "Cool Foods" Campaign aims to take a bite out of global warming by changing the way you eat. http://www.coolfoodscampaign.org

Food and Climate Change – Recent evidence about the contribution of food and farming to climate change. http://www.sustainweb.org/foodandclimatechange

Eat Low Carbon Diet Calculator – Allows you to drag-and-drop various foods into a virtual pan to determine carbon emissions of different meal choices. http://www.eatlowcarbon.org

Name: _____

Types of Food Systems Worksheet

Type of Food System:

Best thing about this type of food system:

Worst thing about this type of food system:

What do you think might make this type of food system better?

What do you know about the quality of food in this type of food system?

How does this type of food system impact the local economy? The global economy?

How does this type of food system impact the environment?

Who benefits in this type of food system? Who does not?

How does this type of food system impact your community?

Activity 2: Seasonality of Food

Driving Question

What is seasonality?
When is produce freshly available in our area? Why?

Time Estimate
20 minutes

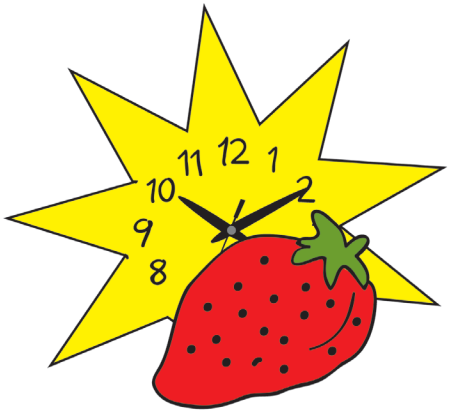
Learning Objectives

- Understand the seasonality of food

Materials

- Seasonal Availability of Produce list for your area (see "Related Links" below)
- internet or library access, if desired for research

Procedure



- Have the group discuss their knowledge of and experiences with strawberries. Some guiding questions:
  - Have you ever eaten strawberries?
  - What are some of the different ways you have eaten strawberries? (fresh, frozen, jam, yogurt, ice cream, shortcake, etc)
  - Have you ever seen strawberries growing?
  - Have you ever picked strawberries? If so, where? When? What time of year was it?
  - Can you pick strawberries here in the winter?
  - When are strawberries ripe locally? (i.e. when are they ready to be picked, what is your local season for strawberries)
- Are there any foods that we cannot grow in our area? Do we eat these foods? When? Where do we get them? Where do they come from?
- Lead a discussion about the Seasonality Availability of Produce list. What do students notice about this list? Why are some items listed in summer but not in winter? How do you know when a food is "in season?"
- What is a growing season? What is a harvest season? What is an availability period? How do these differ and overlap?
- Break into small groups of 3-4 students. Have each group choose a produce item, and make a list of the forms in which it can be eaten when not in season. What has to be done to the fresh product to make it so it can be eaten out of season?
- Have each group create a marketing campaign or presentation about their fruit or vegetable – presenting where it can be grown, the growing and harvesting season, when it is available fresh and through storage, forms it can be eaten in, where to get it locally, what's good about it, etc.

Related Links

Seasonal Produce Lists - Because of the varied climate in the Northeast, different fruits and vegetables are available at different times of the year. This site provides lists, by season, of locally fresh produce in the northeast.
http://webarchive.human.cornell.edu/foodguide/archive/index.html?CFID=81752

Simple Steps: Eat Local - Find produce in season or farmers' markets near you.
http://www.simplesteps.org/eat-local

Activity 3:

Food Miles/Energy Comparison

Time Estimate
40 minutes

Driving Question

How much energy does it take for me to eat a strawberry?

Learning Objectives:

- Compare the benefits and drawbacks/challenges of local and global food systems
- Understand the role of energy in the food system
- Describe the impacts of transporting food

Materials

- food systems models from Unit 2, Activity 1
- Table 1: Strawberry Scenarios
- Table 2: Energy Key
- energy worksheets
- maps of the country and of your local area
- writing board and markers
- paper and pencils
- calculators

Procedure

- Divide into groups of 3-4.
- Have each group select a strawberry scenario. A complete scenario includes one choice from each from the lists of farm type, market type, consumer transportation, and shopping information. If time permits, have each group create a story about the characters in the scenario.
- Using the Energy Key, maps, and other resources as necessary, each group should complete an Energy Cost Worksheet for their scenario. Youth may be able to think of additional factors that should be considered.
- Each small group should present their scenario and their energy calculations to the whole group.
- Discuss the implications of what the groups have discovered about different scenarios. Some guiding questions to consider:
    - Which scenario used the most energy? The least?
    - What factor had the biggest effect on the energy used?
    - What could we do to reduce energy consumption in each of these scenarios?
    - Was the same number of strawberries involved in each scenario?
    - What would happen if we only bought strawberries from California?
    - What would happen if we only bought strawberries locally?
    - What is the best way to buy strawberries?

Related Links

Google Maps – Map your location and get directions to local farms and farmers markets. http://maps.google.com

Energy Information Administration: Annual Energy Review – Annual energy statistics including energy production, consumption, and trade. http://www.eia.doe.gov/emeu/aer/pdf/aer.pdf

Food, Fuel, and Freeways: An Iowa perspective on how far food travels, fuel usage, and greenhouse gas emissions – Report on a study comparing food miles and CO2 emissions in conventional and local/regional food systems. http://www.leopold.iastate.edu/pubs/staff/ppp/index.htm

Eat Low Carbon Diet Calculator – Calculate the carbon emissions of your meal. http://www.eatlowcarbon.org

Food Environment Atlas – A tool created by the USDA's Economic Research Service that provides a spatial view of ability to access healthy food for communities across the country. http://maps.ers.usda.gov/FoodAtlas

Reducing Food Miles: ATTRA – A collection of resources, publications, and tools related to food miles. http://attra.ncat.org/attra-pub/farm_energy/food_miles.html

Life Cycles Food Miles – Learn about and calculate your food miles. Food miles are the distance food travels from the farm to your plate. http://lifecyclesproject.ca/initiatives/food_miles

Table 1. Strawberry Scenarios

FARM TYPE	
Small scale	Farmer raises only a few (2 to 4) acres of strawberries and sells them directly to the customer from the farm or from a farmer's market. Few external inputs are used and yields are modest.
Retail	Farmer raises a medium acreage (approximately 10 acres) of strawberries and sells them directly to the customer from the farm or from a farmers' market. Inputs are greater than small scale and yields are higher.
Wholesale	Farmer raises a large acreage (50 or more acres) of strawberries and sells them to stores or distributors. There is no direct connection with the customer. Yields and inputs tend to be high.
Processing	The farmer raises a large acreage (50 or more acres) of strawberries and sells them to a processing plant to be made into a strawberry product (such as jam). There is no direct connection with the customer. Yields and inputs vary.
Berry Form	• Fresh • Frozen • Jam
MARKET TYPE	
On farm	Pick-your-own or a farm stand located on or near the farm.
Farmers' market	A place at which many farmers sell produce or other farm products. The market is usually located near a population center.
Cooperative Grocer	A medium sized store that sells produce and other food and non-food items. The market is usually located near a population center and is owned by its members.
Supermarket	A large store that sells produce and other food and non-food items. The market is usually located near a population center. Availability of local produce may be limited.
CONSUMER TRANSPORTATION Use of these options depends on consumers, proximity to the market, and proximity to public transit services.	• Automobile • Walk • Bike • Public Transit
SHOPPING TRIP	Shopping trips vary from a trip for only berries to a full week's groceries.
Just berries	Assumes that the consumer only buys strawberries. Common for any market type
Small trip	Assumes that the consumer buys strawberries and one-third of the weekly groceries. Common for any market type.
Week's groceries	Assumes that the consumer buys strawberries and an entire week's groceries. Common for a trip to a supermarket

Table 2. Energy Key

METHOD	FOSSIL ENERGY COST	COMMENTS
Production[1]:		
Small scale	205 kcal/lb	
Retail	506 kcal/lb	
Wholesale – CA	321 kcal/lb	
Wholesale – FL	946 kcal/lb	
Wholesale – Northeast	803 kcal/lb	
Processing – CA/OR	390 kcal/lb	
Harvest:		
Hand picked	0 kcal/lb	Assume all strawberries are hand picked
Processing[2]:		
Jam	261 kcal/lb	Assume 1lb berries makes 1lb of jam
Freezing	825 kcal/lb	Assume 1lb berries makes 1lb frozen
Fresh	0 kcal/lb	
Packaging[2]:		
Glass jar	1,023 kcal/lb	For storing jam - jar holds 1lb
Paper box	722 kcal/lb	For frozen berries - box holds 1lb
Plastic bag	559 kcal/lb	For berries frozen at home - bag holds 1lb
Wood basket	69 kcal/lb	For fresh berries - basket holds 1lb
Storage[2]:		
Frozen	120 kcal/lb/month	Assume berries stored for 6 months
Refrigerated	60 kcal/lb/month	Fresh berries refrigerated during transport
Shelf	0 kcal/lb /month	Storage for jam
Transport[3]:		
Truck	0.18 kcal/lb /mile	Used for wholesale and processed berries
Van / Pick-up	2.24 kcal/lb /mile	Used for small scale and retail berries
Consumer[4]:		
Car (just berries)	1790 kcal/mi	Units purchased = wt berries
Car (small trip)	1790 kcal/mi	Units purchased = wt berries + 11 lbs/person 5
Car (week's groceries)	1790 kcal/mi	Units purchased = wt berries + 32 lbs/person
Bike or walk	0 kcal/mi	

1 – Derived from Galletta and Funt (1980). The cost shown for "Wholesale – Northeast" is from the energy budget of Maryland strawberry production (Galletta and Funt, 1980, p. 300); the cost shown for "Wholesale – CA" is an average of two California energy budgets (Galletta and Funt, 1980, p.302-3); the cost shown for "Processing" is a weighted average from energy budgets of California and Oregon (Galletta and Funt, 1980, p.302-4).
2 – Derived from Pimentel and Pimentel (1996).
3 – Based on fuel efficiency, energy value of fuel, and cargo capacity of vehicle. Fuel efficiencies of "trucks" and "vans/pickups" are 1999 estimates from the U.S. Department of Energy, Energy Information Administration (2002). Energy values (in kcal) for diesel and gasoline are from Cervinka (1980, p 15). Cargo capacity is assumed to be 40,000lbs of produce for trucks and 1,000lbs of produce for vans/pickups.
4 – Energy cost of consumer driving to and from market based on vehicle fuel efficiency and energy value of fuel. Fuel efficiencies of "cars" are 1999 estimates from U.S. Department of Energy, Energy Information Administration (2002). Energy values for gasoline are from Cervinka (1980, p 15).
5 – Distributes the energy cost of traveling to/from market amongst all items purchased during a shopping trip (not just strawberries). The amount of weight added to weight of berries based on the average amount of food consumed per capita in the U.S. Food Supply, 1,670lbs per person per year (Putnum, et al, 2000). A "small trip" assumes 1/3 of weekly food purchased during trip. A "week's groceries" assumes that an entire week's worth of food is purchased.

Name: _____

Energy Cost Worksheet

Scenario:

Farm type & location:

Berry form:

Market type & location:

Consumer transportation & location:

Shopping information:

Stage in food system	Energy cost per unit		Distance traveled/ du-ration stored		Amount purchased		Total energy use
Production		+	N/A	+		=	
Harvest		+	N/A	+		=	
Processing		+	N/A	+		=	
Packaging		+	N/A	+		=	
Storage		+		+		=	
Transport		+		+		=	
Consumer		+		+		=	
Total						=	

Activity 4: Miles in Your Breakfast

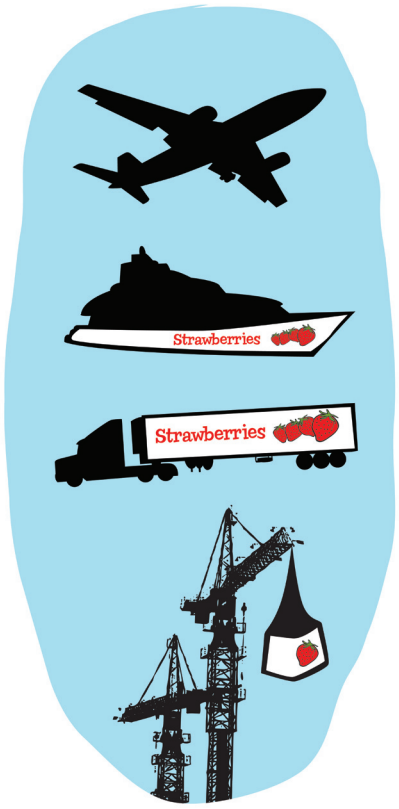
Time Estimate
40 minutes

Driving Question

How far did my breakfast travel?

Learning Objectives

- Compare the benefits and drawbacks/challenges of local and global food systems



Materials

- paper and pencils/pens
- copies of the box below of major crops and states that export them
- calculators if desired
- markers, scissors, tape or glue
- maps of the US/world/region (enough copies for one per pair of students)

Procedure

- As this activity works with students' personal food consumption, remember to be aware of food insecurity and other food sensitivity issues. Use your judgment on how to approach this activity.
- Individually or in small groups, have students write down what they ate for breakfast. Be specific and include all of the components.
- Next, students should break each food item into its ingredients.
- Considering each ingredient individually, students should decide where they think it was probably grown or raised. Students may know specifically where some of the items came from (e.g. if they were homegrown, or procured from a local farmer); for items whose origin is less clear, have students use their general knowledge, or use the resources in the box below to create an educated guess about how far food may have travelled. You might also ask students to bring in the packaging related to their breakfast, or to bring in any information from the packaging regarding the source of the food.
- Add up the distances of each item; how far did the breakfast travel in total?
- On average, food travels over 1500 miles from farm to table. Did your breakfast travel more or less than the average?
- Pair and share.
- In pairs, draw and cut out a picture of each food item discussed. Give each pair a map. Tape or glue each item to the place on the map that it came from. This will create a visual that will allow students to better understand the distance their food has travelled.
- Still in pairs, students should consider which items in their breakfast could be produced locally.
- Back in the large group, discuss the activity. Why did we do this? What did we learn? Why does it matter?

Some of the major crops in the United States and the states that export them:

Corn: Illinois, Iowa, Nebraska, Indiana, Minnesota, & Ohio.

Dairy Products: Wisconsin, California, New York, Pennsylvania, & Minnesota.

Beef: Texas, Nebraska, Kansas, Colorado, Iowa, Oklahoma, & California.

Soybeans: Illinois, Iowa, Nebraska, Indiana, Minnesota, & Ohio.

Pork: Iowa, Illinois, Minnesota, Nebraska, Indiana, North Carolina, & Missouri.

Chickens: Arkansas, Georgia, Alabama, North Carolina, Mississippi, & Texas. Wheat: North Dakota, Kansas, Montana, Oklahoma, Washington, & Minnesota.

Eggs: California, Georgia, Arkansas, Indiana, Pennsylvania & Texas.

Potatoes: Idaho, Washington, California, North Dakota, Maine, & Wisconsin.

Tomatoes: Florida, California, Virginia, Ohio, Georgia, & Michigan.

For more detail, or additional crops, consult resources such as:
http://faostat.fao.org/site/339/default.aspx
http://www.nass.usda.gov/Charts_and_Maps/index.asp
http://www.fas.usda.gov/psdonline/psdHome.aspx
http://www.nass.usda.gov/Charts_and_Maps/Crops_County/index.asp#br
http://www.leopold.iastate.edu/resources/fruitveg/fruitveg.php

Related Links

Where do your fresh fruits and vegetables come from? – U.S. supermarkets and restaurants sell fresh fruit and vegetables from all over the world. This resource shows common origins of more than 95 different produce commodities that are shipped into or across the United States each year.
http://www.leopold.iastate.edu/resources/fruitveg/fruitveg.php

Find the Farmer – Stone-Buhr flour company allows consumers to locate the farms that grew the grain milled to create their flour. Type in a product's lot code in the field to the left, and the site will introduce you to the local growers responsible for the final product. http://www.findthefarmer.com

Life Cycles Food Miles – Learn about and calculate your food miles. Food miles are the distance food travels from the farm to your plate.
http://lifecyclesproject.ca/initiatives/food_miles

Diets and NY's Ag Footprint - Article reporting a Cornell University study on the "foodprint" size of different types of diets.
http://www.news.cornell.edu/stories/oct07/diets.ag.footprint.sl.html

Know Your Farmer Know Your Food - This is a USDA-wide effort to create new economic opportunities by better connecting consumers with local producers. It is also the start of a national conversation about the importance of understanding where your food comes from and how it gets to your plate.
http://www.usda.gov/wps/portal/usda/knowyourfarmer?navid=KNOWYOURFARMER

Food for Thought Journal

Reflect on your learning in this unit. What have you learned about the food system? How does what you've learned connect with your own life? Why does it matter? Do you think any of this information will influence your food choices in the future? Why or why not? Are there any changes you would like to make in the food system or in the way you participate in it? What questions do you have now about the food system?

Going Further

- Describe the growing season in your area – how long is it, average temperatures, average rainfall, etc.
- Calculate your environmental footprint.
- Determine your "foodprint."
  Diets and NY's Ag Footprint - Article reporting a Cornell University study on the "foodprint" size of different types of diets. http://http://www.news.cornell.edu/stories/oct07/diets.ag.footprint.sl.html
- Get the flyer from a local grocery store, and see if you can determine which of the foods advertised are local, regional, or global.
- Try to eat only locally for a week.
  Simple Steps: Eat Local http://www.simplesteps.org/eat-local - Find produce in season or farmers' markets near you.
- Try to eat only seasonally for a week
  Seasonal Produce Lists - Because of the varied climate in the Northeast, different fruits and vegetables are available at different times of the year. This site provides lists, by season, of locally fresh produce in the northeast. http://webarchive.human.cornell.edu/foodguide/archive/index,html?CFI=8966335a1c80d60451752
- Community mapping: Take a map of your town, neighborhood, or region. Assign a different color (marker, colored dot, etc) to each of local, global, regional, and community. Mark on the map the locations of institutions that participate in each of these food systems (such as grocery stores, restaurants, farms, etc.). What can you discover from this map?
- Prepare a meal in class that uses only local ingredients. Ask local stores and farms if they would donate to your project if funds are not available.

Assessment Ideas

Portfolio: Select a meal you recently had at home. This could be the meal from the Unit 1 portfolio piece, or another meal. For this meal:

- Create a map showing where each food item could have come from (like you did in Activity 4).
- Explain whether each item is from the local, regional, or global food system.
- Describe the growing season for this food. If you ate it out of season, explain what needed to happen to make it available (storage, preservation, etc.).
- Calculate the energy used to get each food item to your table, and the total energy used to create the meal.

Quiz suggestions:

- Explain the differences between local and global food systems.
- Compare local and global food systems. What are the benefits and drawbacks of each?
- In your opinion, is a local or a global food system better? Write a paragraph using facts about food systems to support your opinion.
- What does it mean for food to be 'in season'?
- Calculate the energy used in getting the food from farm to table in the scenario described below. Show your work. (Teachers—create a scenario based on the energy worksheets. Give students copies of the worksheets.)
- Describe the impacts of transporting food.

Unit 4: Nutrition and Health

Introduction

This unit makes connections among food, nutrition, food marketing, and the food system. The first activity introduces the US Dietary Guidelines for Americans and the USDA Food Guide Pyramid. Other food guides are also considered.

NY State Learning Standards
English Language Arts 4
Mathematics, Science, and Technology 2
Health, Physical Education, and Family and Consumer Science 1

Getting to the Core

Because apples are fruit, they appear in the "Fruit Group" of the food pyramid – both the USDA (http://www.mypyramid.gov) and the Northeast Regional versions. Several different varieties of apples grow in the Northeast. Apples, in many forms (fresh, applesauce, apple butter, juice, etc.), will fit in the fruit food group. Apples have no fat, are low in calories, are a good source of fiber and provide a modest amount of vitamin C. Definitely a good snack item!

Learning Objectives

- Use the USDA food guide to identify the food groups and the recommended number of servings of each
- Describe the similarities and differences between the USDA food guide and other food guides
- Describe ways the food system can impact health

Key Concepts

- **Nutrition**
- **Food Guide**
- **Food Group**
- **Serving Size**

Background

Nutrition refers to giving the body food to support health and life. Food is an important part of maintaining good health. How much and what kinds of food one eats can have a major impact on one's health. But how do we know what foods to choose to be healthy?

Food Guides

A food guide is an educational tool designed to help people make healthy food choices. A food guide translates nutrition recommendations into food recommendations. It organizes foods into categories, or "food groups" to help people figure out a nutritionally adequate and wholesome diet. Schools and other institutions base their meals on the recommendations of food guides to ensure that they provide nutritionally adequate and healthy meals.

Food guides reflect current knowledge about nutrition and may change in response to advances in nutrition science and in our understanding of the relationship between diet and health. The USDA has been publishing food guides since 1917. For history on the development of food guides in the United States, visit: http://www.health.gov/dietaryguidelines/history.htm and http://www.nal.usda.gov/fnic/history.

Activity 1: Food Guides

Time Estimate
40 minutes

Driving Questions

What are food guides?
How can they help us choose a healthy diet?
How do they relate to the food system?

Learning Objectives

- Use the USDA MyPlate to identify the food groups and recommended amounts to eat
- Describe the similarities and differences between the USDA MyPlate and other food guides

Materials

- photocopies of the USDA MyPlate and other food guides (see Related Links, below, for links to a number of food guides)

Procedure

- Hand out copies of the USDA MyPlate. Are students familiar with it? What does the pyramid "say"? What is the purpose of the food pyramid? Why does the USDA put out a food guide?
- Divide into small groups. Give each group a different alternative food guide. Have each group use the Food Guides Worksheet to facilitate a discussion about the two food guides.
- Have each group share their findings with the large group.
- Discuss the implications of MyPlate. Who uses it? Why? Does it affect anything in your life?
- Individually or in small groups, have students create their own food guide graphic, based on their understandings of healthy eating.

Related links

USDA MyPlate – The USDA MyPlate represents the official US government dietary guidelines. http://www.choosemyplate.gov

2010 Dietary Guidelines for Americans – This publication includes guidelines and additional resources on healthy eating.
http://www.health.gov/dietaryguidelines/dga2010/DietaryGuidelines2010.pdf

Historical Food Guides Background and Development – Traces the history of U.S. Department of Agriculture Food Guides. http://www.nal.usda.gov/fnic/history

History of Dietary Guidelines for Americans – Traces the history of dietary guidelines from 1980 to the present. http://www.health.gov/dietaryguidelines/history.htm

U.S. Department of Agriculture – The USDA is the government agency responsible for agriculture in the United States. Explore their page for educators and students for additional lessons and resources related to agriculture and food systems. http://www.usda.gov

Nutrition Glossary – Defines various nutrition terms as well as explaining the role of each nutrient in the body. http://www.nutritiondata.com/help/glossary

Healthy Meals – USDA resources on child nutrition. http://healthym14&tax_level=1

Nutrition Explorations – Interactive learning activities to engage students in nutrition, healthy eating, physical activity, and positive self-esteem. The program features entertaining ways to explore and foster healthy living habits through a series of curriculum-based resources for students in kindergarten to grade 8. http://www.nutritionexplorations.org

Mission Nutrition – Includes nutrition lesson and activity ideas as well as food games for students. http://www.missionnutrition.ca/missionnutrition/eng

Eat Well Be Well – Health and nutrition activities for kids. http://www.eatwellbewell.org/kids

Oldways Traditional Diet Pyramids
http://www.oldwayspt.org/eating-well/introduction-traditional-diet-pyramids

Four alternative diet pyramids based on traditional diets in different parts of the world.
https://www.oldwayspt.org/sites/all/files/MedPyramid_1000x1294.jpg
http://www.oldwayspt.org/sites/all/files/pyramid_asian.jpg
http://www.oldwayspt.org/sites/all/files/399LatinDietPyramid_300px.jpg
http://www.oldwayspt.org/sites/all/files/pyramid_vegetarian.gif

Mayo Clinic Vegetarian Food Guide Pyramid
http://www.mayoclinic.com/health/vegetarian-diet/HQ01596

USDA Ethnic/Cultural Food Guides – Links to a variety of alternative diet pyramids and food guides from other countries. http://fnic.nal.usda.gov/nal_display/index.php?info_cenel=3&tax_subject=256&topic_id=1348&level3_id=5732

Special Audience Food Guide Pyramids – USDA links to food guides for youth, older adults, weight loss, and vegetarians. http://fnic.nal.usda.gov/nal_display/index.php?info_center=4&tax_level=3&tax_subject=256&topic_id=1348&level3_id=5733

Healing Foods Pyramid – A pyramid from the University of Michigan Integrative Medicine. http://www.med.umich.edu/umim/food-pyramid

The Healthy Eating Pyramid – A pyramid developed by the Department of Nutrition at the Harvard School of Public Health. http://www.hsph.harvard.edu/nutritionsource/files/Healthy-Eating-Pyramid-handout.pdf

Name: _____

Food Guides Worksheet

What do you notice about the new food guide you have just been given?

What differences do you notice between the MyPlate guide and the new food guide?

What is the focus of each guide?

Do the two guides have the same purpose or different purposes?

What does each guide "tell" you to eat?

What are the health implications of each food guide?

Does either guide support any person or group? If so, who?

How are local and seasonal foods represented? Traditional and cultural foods?

Is there anything about food systems represented in either guide?

Activity 2:
Health and the Food System

Time Estimate
40 minutes

Driving Questions

How does the food system affect my health?

Learning Objective

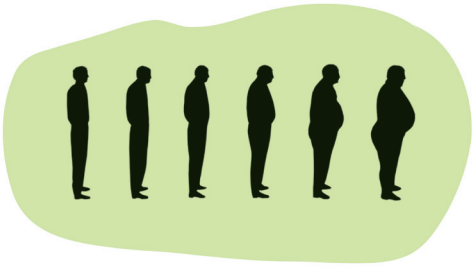
- Describe ways the food system can impact people's health

Materials

- none

Procedure

- Discuss the fact that food is essential to life and health, but that food can also contribute to health problems
- Have students brainstorm foods that make them feel…
    - Greasy
    - Hyper
    - Sad
    - Happy
    - Etc.
- Have students brainstorm all the health problems that they can think of.
- Discuss how these health problems might be related to the food system. You will need to be selective and sensitive about which health issues you discuss, but many health problems can be connected to the food system – though they are not necessarily entirely food-related. For example,
    - diabetes: difficulty processing sugar, can be related to obesity
    - high blood pressure: may be diet-related
    - heart disease: may be diet-related
    - vitamin/mineral deficiencies: not enough of the vitamin/mineral, or difficulty processing or getting the vitamin/mineral out of the food
    - ADHD: some people find that reducing sugar consumption can reduce symptoms of ADHD
    - food allergies: allergic reaction to a given food
    - cancers: antioxidants in foods have been linked to reduced risk of many cancers
    - depression: when people are depressed they often want to eat a lot or very little
    - food-borne illnesses
- How does the food system relate to these health problems?
- Does our food system encourage health? How? Does our food system encourage disease? How?
- Discuss "healthy" and "unhealthy" foods. Is there a clear distinction between the two? Do students agree? Why or why not? Does the food system encourage people to consume foods in one category or the other? Which are easier



to buy and consume? Which cost more? Does everyone have access to both categories?
- Many people believe that our current food system encourages unhealthy eating; brainstorm things that could be changed about the food system to encourage healthy eating.
- In small groups, have students create an advertisement or public service announcement about how the food system encourages health or how it could do better. Alternatively, they could focus on promoting a "healthy" food.

Related Links

Oldways – Oldways seeks to change the way people eat through practical and positive programs grounded in science, traditions, and delicious foods and drinks. It is best known for developing consumer-friendly health-promotion tools, including the well-known Mediterranean Diet Pyramid. http://www.oldwayspt.org

Food and Mental Health – The Food and Mental Health Project addresses the many implications of the growing evidence linking what we eat to the way we feel and behave. http://www.sustainweb.org/foodandmentalhealth

Food for Thought Journal

What constitutes a healthy diet? Is it the same for everyone?
List all the foods you ate yesterday. How did your diet stack up compared to the recommendations of the USDA or another food guide?

Going Further

- Research a health issue that you think may be related to the food system and report to the class or in writing.
- Write an essay on how the food system encourages or discourages healthy eating.
- Write a journal reflection on your own eating habits. Do you tend to eat in accordance with guidelines? Why or why not? Are your eating habits based on your own choices or food system factors outside of your control (financial, availability, time for preparing meals, etc)?
- Taste the Food Guide: using MyPlate or another food guide, bring in one or two foods from each section of the pyramid or guide, and do a taste test.

Assessment Ideas

Portfolio: Write a report about healthy diets and the food system. Include information about the recommendations from the USDA MyPlate, the health impacts of following or not following the recommendations, and how the food system helps or hinders people's ability to follow those recommendations.

Quiz suggestions:
- What does the USDA MyPlate recommend should be included in a healthy diet?
- What are the similarities and differences between the USDA Food Pyramid and the other food guide? (Teachers—provide a second food guide of your choice from Activity 1.)
- In what ways does the food system impact people's health?

Unit 5:

Food Labeling and Advertising

NY State Learning Standards
English Language Arts 1
Social Studies 4
Mathematics, Science, and Technology 2
Health, Physical Education, and Family and Consumer Science 1

Introduction

Students will consider the information included, or not included, on food packaging and how to understand food labels. Students will then think about what additional information they would like to see on food packaging and develop their own food labels.

Learning Objectives

- Read and understand food labels
- Develop a food system message for a food product label

Key Concepts

- **Food Labels**
- **Nutrition Facts**
- **Ingredients**
- **Health Claim**

Background

Food Labels

The government requires and regulates labels on foods to help people make informed choices about what to eat. This includes information on the amount of calories, fat, cholesterol, dietary fiber, and other nutrients. Food labels also provide % Daily Values that help consumers see how a food fits into an overall daily diet. There are uniform definitions for terms that describe a food – such as "light," "low-fat," and "high-fiber" – to ensure that such terms mean the same for any product on which they appear.

Nutrition Facts Panel

In the "Nutrition Facts" panel, food manufacturers are required to provide information on certain nutrients, including calories, fat, cholesterol, sodium, carbohydrates, and protein.

The required nutrients were selected because they address today's health concerns and our understanding of the relationship between diet and health (which has changed over time). The order in which they must appear reflects the priority of current dietary recommendations. Manufacturers may also choose to provide information on other components, such as monounsaturated fat, potassium, soluble fiber, etc.

Serving Sizes

The serving size is the basis for reporting each food's nutrient content. Servings are expressed in both common household and metric measures. Serving size is defined as the amount of food customarily eaten at one time, which the FDA has established as "Reference Amounts Customarily Consumed Per Eating Occasion."

Getting to the Core

This is a "Nutrition Facts" label found on a jar of applesauce. Notice the nutrients that are included and the ingredients in this apple product.

Nutrition Facts

Serving size	½ cup
Amount Per Serving	
Calories 52	
Calories from Fat 0	
	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Potassium 170mg	5%
Total Carbohydrate 22g	7%
Dietary Fiber 5g	20%
Sugars 16g	
Protein 0g	
Vitamin A 2%	Vitamin C 8%
Calcium 0%	Iron 2%

*Percent Daily Values are based on a 2000-calorie diet. Your daily values may be higher or lower depending on your calorie needs

Ingredients: Apples, Vitamin C

Do all foods carry Nutrition Labeling?

Some foods are exempt from federal nutritional labeling requirements:

- foods served for immediate consumption, such as those served in cafeterias or sold by food service vendors--for example, ice cream stores and sidewalk vendors
- ready-to-eat foods prepared primarily on site--for example, at a bakery or deli
- food shipped in bulk, as long as it is not for sale in that form to consumers
- medical foods, such as those used to address the nutritional needs of patients with certain diseases
- plain coffee and tea, some spices, and other foods that contain no significant amounts of any nutrients
- fresh produce

Note that some cities and states may require more labeling than the federal government.

Health Claims

A health claim is a statement of a relationship between a nutrient or a food and the risk of a disease or health-related condition. Ten specific nutrient-disease relationship claims are allowed:

- Calcium and osteoporosis
- Fat and cancer
- Saturated fat and cholesterol and coronary heart disease (CHD)
- Fiber-containing grain products, fruits and vegetables and cancer
- Fruits, vegetables and grain products that contain fiber and risk of CHD
- Sodium and hypertension (high blood pressure)
- Fruits and vegetables and cancer
- Folic acid and neural tube defects
- Sugar alcohols and cavities

The food must contain specified levels of the nutrient in order for the claim to be made. The claim also must be phrased so that consumers can understand the relationship between the nutrient and the disease and the nutrient's importance in relationship to a daily diet. An acceptable example of a claim is: "While many factors affect heart disease, diets low in saturated fat and cholesterol may reduce the risk of this disease."

Nutrient Content Claims

The regulations also spell out what terms may be used to describe the level of a nutrient in a food and how they can be used. These are the core terms:

- Free. A product contains no amount of, or "physiologically inconsequential" amounts of something. Synonyms: "without," "no," "zero," and, for milk, "skim."
- Low. Descriptors are defined as follows:
  Low-fat: 3g or less per serving
  Low-saturated fat: 1g or less per serving
  Low-sodium: 140 mg or less per serving
  Very low sodium: 35mg or less per serving
  Low-cholesterol: 20 mg or less and 2 g or less of saturated fat per serving
  Low-calorie: 40 calories or less per serving
  Synonyms: "lo," "little," "few," "low source of," and "contains a small amount of."
- Lean and extra lean. Describe the fat content of meat, poultry, seafood, and game meats.

lean: less than 10 g fat, 4.5 g or less saturated fat, and less than 95 mg cholesterol per serving and per 100 g.
extra lean: less than 5 g fat, less than 2 g saturated fat, and less than 95 mg cholesterol per serving and per 100 g.

- High. The food contains 20 % or more of the Daily Value for a particular nutrient per serving. Synonym: "hi"
- Good source. One serving contains 10 to 19 % of the Daily Value for a particular nutrient.
- Reduced. A nutritionally altered product that contains at least 25 % less of a nutrient than the regular product. Cannot be made on a product if the reference food already meets the requirement for a "low" claim.
- Less. A food, whether altered or not, contains 25 % less of a nutrient than the reference food. For example, pretzels that have 25 % less fat than potato chips could carry a "less" claim. "Fewer" is a synonym.
- Light. Two meanings: (1) a nutritionally altered product contains one-third fewer calories or half the fat of the reference food. If the food derives 50 percent or more of its calories from fat, the reduction must be 50 percent of the fat. (2) sodium content has been reduced by 50 %. The term "light" still can be used to describe such properties as texture and color, as long as the label explains the intent--for example, "light brown sugar" and "light and fluffy."
- More. Contains a nutrient that is at least 10 % of the Daily Value more than the reference food. Synonyms: "fortified," "enriched," "added," and "extra and plus," but in those cases, the food must be altered.
- Healthy. Low in fat and saturated fat and contain limited amounts of cholesterol and sodium. In addition, if it is a single-item food, it must provide at least 10 % of one or more of vitamins A or C, iron, calcium, protein, or fiber. Exempt from this "10 %" rule are certain raw, canned and frozen fruits and vegetables and certain cereal-grain products. These foods can be labeled "healthy," if they do not contain ingredients that change the nutritional profile, and, in the case of enriched grain products, have certain required ingredients. If it's a meal-type product, such as frozen entrees and multi-course frozen dinners, it must provide 10 % of two or three of these vitamins or minerals or of protein or fiber, in addition to meeting the other criteria. The sodium content cannot exceed 360 mg per serving for individual foods and 480 mg per serving for meal-type products.
- Fresh. Raw or unprocessed, has never been frozen or heated, and contains no preservatives. (Irradiation at low levels is allowed.) Other uses of the term "fresh," such as "fresh milk" or "freshly baked bread," are not affected.

Ingredient Labeling

Ingredient Labeling, or declaring what is in a food product, is required on all foods that have more than one ingredient. Identifying all ingredients helps people with allergies, or religious restrictions, avoid things they do not eat.

Activity 1: Reading Food Labels

Time Estimate
20 minutes

Driving Questions

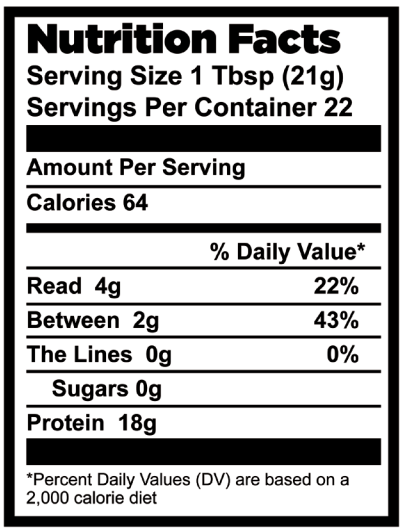
What information is on food labels? What does it mean?

Learning Objective

- Read and understand food labels

Materials

- A variety of food packages (should include the Nutrition Facts table and the ingredients list) – could be labels from canned goods, dry packaged, foods, frozen foods, etc. To review prior units, try to have a mix of local and nonlocal products.



Nutrition Facts
Serving Size 1 Tbsp (21g)
Servings Per Container 22

Amount Per Serving	
Calories 64	
	% Daily Value*
Read 4g	**22%**
Between 2g	**43%**
The Lines 0g	**0%**
Sugars 0g	
Protein 18g	

*Percent Daily Values (DV) are based on a 2,000 calorie diet

Procedure

- Distribute food packages – at least one per pair of students
- Discuss the information that they see on the packages. What information do they notice? Why do we have labels on foods?
- Discuss the nutrition facts table and ingredients lists. Why are these required?
- Are there any health claims on the packages?
- Have students compare the information on different food packages – are all food labels the same? What similarities and differences do students notice?
- Have students examine their packaging closely to determine if there is any information about the food system – where the ingredients came from, how they were produced, processed and transported, etc.
- Have students consider the marketing of the product – consider touch, color, etc – does the package make you want to eat the food?

Related Links

FDA Food Labeling and Nutrition – Food labeling requirements of the Food and Drug Administration. General Inquiries: 1-888-INFO-FDA (1-888-463-6332). Food Safety Hotline: 1-800-332-4010. http://www.cfsan.fda.gov/label.html

Food Labeling by J Ralph Blanchfield - This is a 300-page book (link is to e-book format), so you may not want to read the entire thing, but it is a comprehensive treatment of food labeling. http://books.google.ca/books?id=EmpheLx5Nq0C&dq=food+labelling&printsec=frontcover&source=bl&ots=WrZoP0kuPQ&sig=bwvIrRdHngxA6du-AHtCyYBePq4&hl=en&ei=feFES-PSLomMaW45fEB&sa=X&oi=book_result&gQ6AEwCw#v=onepage&q=&f=false

USDA – Meat and Poultry Hotline: 1-800-535-4555. http://www.usda.gov/wps/portal/usda/usdahome

Food Politics - Marion Nestle's website and blog. http://www.foodpolitics.com

Educational videos about food labelling
http://www.fda.gov/Food/LabelingNutrition/ConsumerInformation/ucm246815.htm

Activity 2: Food System Labels

Driving Questions

What should labels tell us about the food system?

Time Estimate
20 minutes

Learning Objective

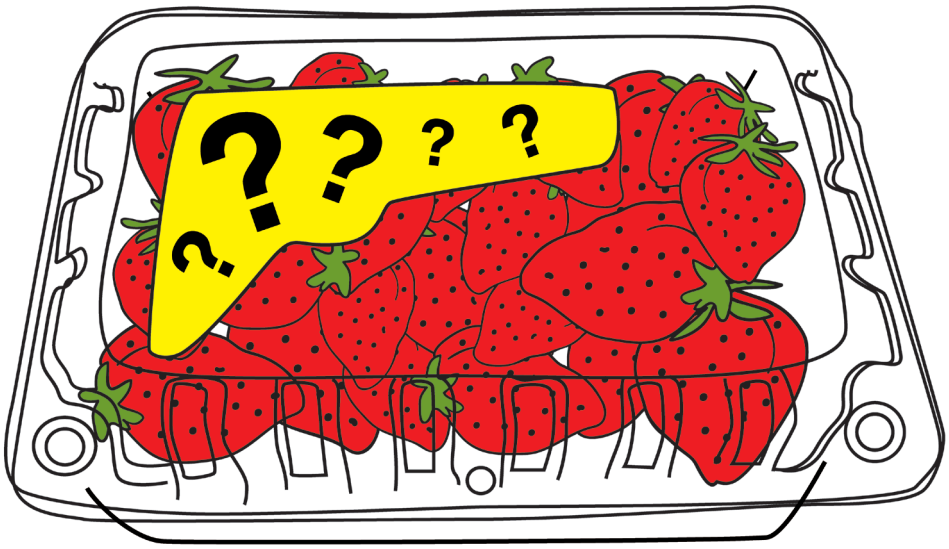
- Develop a food system message for a food product label

Materials

- art supplies – paper, markers, etc.

Procedure

- Divide into small groups.
- Have each group work together to review the things they have learned thus far about the food system (steps, impacts, your relationship to it). Next they should consider what additional information they would like to see required on food labels, to help people understand how the food fits into the food system. Why do they think those things are important?
- Each group will choose a food product and write a food system message and icon for the label, or for the more ambitious, create a completely new label with a food system message.



Activity 3: Food Advertising

Time Estimate
45 minutes

Driving Questions

How is food advertised?
How does advertising affect me?
How does advertising fit in to the food system?

Learning Objectives

- Read and understand food labels
- Develop a food system message for a food product label

Materials

- food advertising, in various media
- students' food system models from Unit 2, Activity 1
- materials for creating advertisements

Procedure

- In preparation for this activity, have each student bring in one or more food ads (or collect and bring them in yourself).
- Put up a large food pyramid (MyPlate or another) on the wall.
- Have students place each ad in the appropriate section of the pyramid.
- What patterns do you notice? What types of food products are advertised? Why are these products advertised and not others?
- Discuss the place of advertising in the food system. Have students look at their food system models (begun in Unit 2, Activity 1, and modified since) and identify where they placed advertising (if at all) and how it relates to the other elements of the food system. Why do students think food advertising exists? Seeing as we all need to eat anyway, why bother with advertising food?
- Hand out or show an example of food advertising. Lead the group in assessing the advertising critically. What is being sold in the ad? How is it being advertised to the consumer? Are any additional agendas present in the ad, beyond that of selling the product?
- Divide youth into groups of 2-3. Give each group an example of food advertising. Have groups review the advertising critically. Some guiding questions:
  - What is being sold?
  - How is it being presented?
  - What is the main message of the advertisement?
  - Would you buy the product? Why or why not?
  - Do you notice any additional agendas present in the ad?
- Groups should present their assessment to the larger group.
- Next, have each small group select a food product (or you can assign food products, if you prefer) and create an advertisement for it. What message are they trying to convey? What is the best way to convince consumers to buy their

product? The level of complexity and sophistication of the ad will depend on the interest and materials available to your group. A sketch of a print ad or a skit might be low tech versions; a full-color poster or video ad might be higher tech approaches.

Related Links

Media Literacy and Advocacy for Nutrition and Health Education – A PDF list of resources and references on media literacy and advocacy in the fields of nutrition and health education. http://www.nycnen.org/pdf/mlrrc.pdf

Just Think – A number of programs and curricula to teach youth about media literacy. http://www.justthink.org/for/?c=youth

PBS Media Education Activity Ideas – Activity ideas for educators by grade level. http://www.pbs.org/teachers/media_lit/getting_started.html

Shaping Youth – Teaching kids media literacy and label lingo. http://www.shapingyouth.org/?p=188

Children's Food Campaign – The Campaign wants to improve young people's health and well-being through better food – and food teaching – in schools and by protecting children from junk food marketing. http://www.sustainweb.org/childrensfoodcampaign

Food for Thought Journal

Look at a food label of a product you have a home.

- What nutrition information do you find on the label?
- What information do you find about where the food was grown? What would you like to see?
- Is there any information about the people involved in the creating the product?
- Is there any information about the processing or packaging of the food product?
- Is there any information that you would like to see on the package but do not find?

Going Further

Choose a food product and design a package for it, including all the information that is required and that you would like to see.

Find a food whose package includes a health claim. Call the company to discuss what it means.

Investigate the people involved in this aspect of the food system. Contact someone who works in food labeling or advertising and ask them about their job.

Watch 1-2 hours of commercial TV, or flip through a stack of magazines. Create a log of how many food advertisements you saw, what they were for (and how many ads for each product), what strategies the ad used, and whether you would like to buy the product.

Pick a food system topic, find 3 media sources that portray it in different ways, assess and analyze.

Read aloud some food ad slogans and have students either complete the slogan or tell you what it's for. Use your knowledge of your group to select appropriate ones; here are a few suggestions:

- "Hungry? Grab a _____" (Snickers)
- "The Freshmaker!" (Mentos)
- "Breakfast of Champions" (Wheaties)
- "Kid tested. Mother approved." (Kix)
- "Silly Rabbit, _____ are for Kids" (Trix)

Use this activity to start a discussion about food advertising. Why were students so good at the slogans?

Assessment Ideas

Portfolio: Select a food item and create a label for the item. Be sure to include:

- All required information—nutrition, ingredients
- Appropriate health claims
- Food system information

Quiz suggestions: Collect several food labels and ask questions about the information in them.

- Which product has the lowest percentage of your daily allowance of sodium?
- How much cholesterol is in product B?
- Which product has the highest percentage of calories from fat?
- What do the makers of product C want you to notice about their product?
- Which product has the most convincing label (which is most likely to convince people to buy it)?

Unit 6:
School Lunch Laboratory

NY State Learning Standards
Social Studies 1, 3, 4
Health, Physical Education, and Family and Consumer Science 1

Getting to the Core

The commodities program provides apples to schools in a variety of forms:

- Apple slices, canned, unsweetened
- Apple slices, frozen, unsweetened
- Apples, fresh, whole
- Apples, fresh, sliced
- Applesauce, canned, unsweetened

Introduction

Most students eat lunch daily at school, but probably have not thought about how their lunch fits into the food system. This unit provides an opportunity for students to investigate the place of their lunch in the food system. Students will analyze their lunch and consider the history of the school lunch program.

Learning Objectives

- Assess lunch through a variety of lenses
- Understand how the school cafeteria interacts with the food system
- Explain the history of the school lunch program

Key Concepts

- **National School Lunch Program**
- **Farm-to-School**

Background

The federally-assisted National School Lunch Program (NSLP) operates in public and nonprofit private schools and residential child care institutions. It provides nutritionally balanced, low-cost or free lunches to children each school day. The current program was established under the National School Lunch Act in 1946 as a way to prop up food prices by absorbing farm surpluses, while at the same time providing food to school age children.

History
Prior to the 1930's, children were responsible for their own lunch during the school day.

During the Depression of the 1930's, farmers had trouble selling their products; at the same time, many school children could not afford lunch. Congressional action was taken in 1935 to aid both agriculture and the school children. The government was to purchase price-depressing surplus foods from farmers and use them for school lunch.

As many children were skipping lunch, the school lunch program used foods that would otherwise not be purchased in the marketplace and farmers got a market for their products at a reasonable price. The Federal Surplus Commodities Corporation managed the purchase and distribution program.

In March 1937, there were 3,839 schools receiving commodities for lunch programs serving 342,031 children daily. Two years later, the number of schools participating had grown to 14,075 and the number of children had risen to 892,259. The 1941-42 school year was the peak year in school lunch participation in the

commodities program. During that year, 454 million pounds of food valued at over $21 million were allotted to schools.

Foods were received by each state and then distributed to counties and individual schools. In order to receive the food, the school had to agree that it would be used for preparation of school lunches, that the school would not stop buying other food because of the surplus foods, that the program would not be operated for profit, and that children who could not pay for their meals would not be segregated or discriminated against and would not be identified to their peers.

The maximum quantity of any food that any school could receive was based upon a maximum quantity per child per month established by USDA. This method of allocation persists to this day, with the exception that for some items the allocation is unlimited if the supply is adequate.

In addition to providing food to hungry children and markets for farmers, the school lunch program provided jobs to people otherwise out of work. During the Depression, adults prepared and served school lunches; youth served as part-time helpers and also built tables and chairs for lunchrooms.

Present
Currently, the majority of the support provided to schools participating in the program comes in the form of a cash reimbursement for each meal served. Many people have been critical of the low reimbursement amount provided, as it encourages schools to purchase processed foods, which may be less expensive.

Schools can also select “entitlement foods” available from surplus agricultural stocks purchased by the USDA. Bonus foods are offered as they become available through agricultural surplus. The variety of both entitlement and bonus foods depends on quantities available and market prices.

USDA partners with the Department of Defense (DoD) to provide schools with fresh produce purchased through DoD. Since 2000, through the National Farm to School Program, USDA has begun working with schools to help promote connections with local small farmers to provide fresh produce.

In 2007, The National School lunch Program served 30.5 million children each day at a accost of $8.7 billion. Since the modern program began in 1946, over 219 billion lunches have been served.

Source:
http://www.fns.usda.gov/cnd/

Other resources:
School Lunch Politics: The Surprising History of America’s Favorite Welfare Program, by Susan Levine
Free for All: Fixing School Food in America, by Janet Poppendick
www.farmtoschool.org

Activity 1: History of School Lunch

Driving Questions

What is the history of the school lunch program?
Why do we have low-cost meals in school?

Time Estimate
25 minutes

Learning Objectives

- Assess lunch through a variety of lenses
- Understand how the school cafeteria interacts with the food system
- Explain the history of the school lunch program

Materials

- information on the history of school lunch (from "background")
- paper plates, markers or other art supplies
- whiteboard and markers

Procedure

- Review the history of the National School Lunch Program in "Background," above.
- As a group, create a preliminary timeline on the board.
- Either in small groups or as a large group, decorate each paper plate to represent a different period in the history of the National School Lunch Program (for example, pre 1930's, The Depression, early commodities program, 1941-42 peak year, 1946 National School Lunch Act, present day). Remember to include the date on each plate! Depending on the size of your group, each student might take charge of one point on the timeline.
- Arrange the paper plates in the correct order on the wall.

Activity 2: Lunch Design

Driving Questions

What makes a school lunch?

Time Estimate
10 minutes

Learning Objective

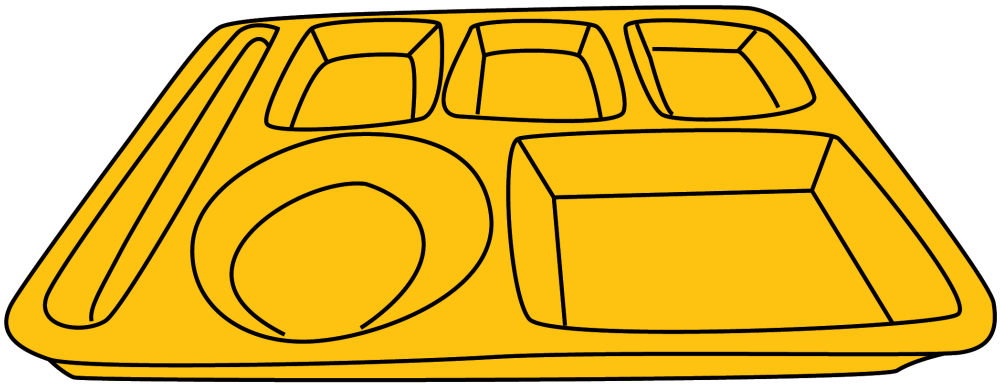
- Assess lunch through a variety of lenses

Materials

- paper and pens/pencils

Procedure

- In small groups, design a school lunch menu that fulfills the nutritional requirements of the school lunch program:
  - Meat option: 1-1/2 to 3 oz per day of lean meat, poultry, or fish.
  - Alternate Meat Option: Peanut butter, eggs, yogurt, cheese, cooked dry beans or peas.
  - Vegetable and fruit option: minimum of two servings per day.
  - Enriched grain source: One serving per day.
  - Milk option: 1/2 pint of milk per day.



Activity 3: Assess Your Lunch

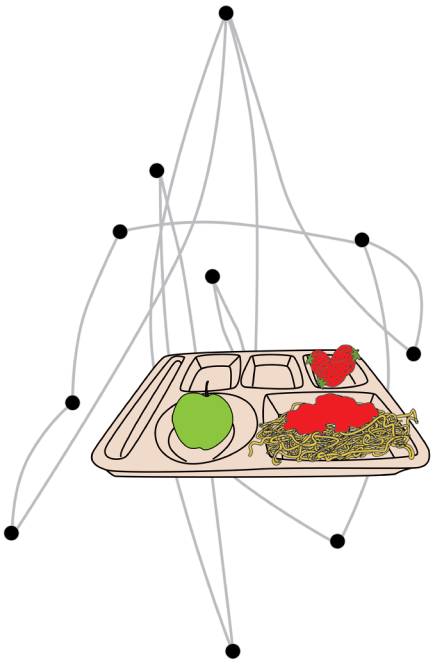
Time Estimate
40 minutes

Driving Questions

How does my lunch fit into the food system?

Learning Objectives

- Assess lunch through a variety of lenses
- Understand how the school cafeteria interacts with the food system



Materials

- students' food system models (begun in Unit 2, Activity 1) and articulations of food values (from Unit 1, Activity 1 and Unit 1, Activity 4)
- today's cafeteria menu (or use students' knowledge of what was for lunch today)
- MyPlate or other food guides

Procedure

- Assess today's lunch in the cafeteria in terms of:
  - Your food values ("Today's lunch was/wasn't consistent with my food values because….")
  - Path it has taken through the food system
  - How far it may have travelled to reach the cafeteria – use your best estimates!
  - Which type of food system does it reflect? Local, regional, global, community?
  - Nutrition
  - Taste
- If students bring their own lunches, assess them in the same fashion. Compare different students' lunches in a non-judgmental fashion.

Related Links

Farm to School – Farm to School connects schools (K-12) and local farms with the objectives of serving healthy meals in school cafeterias, improving student nutrition, providing agriculture, health and nutrition education opportunities, and supporting local and regional farmers. http://www.farmtoschool.org

50 Voices from DC Farm to School Week – Fifty educators, farmers, administrators, chefs, gardeners, organizers, volunteers, parents, and students speak about their experiences during D.C. Farm to School Week - a celebration of fresh, locally-grown produce in D.C. school meals. http://storiography.com/50voices/index.html

Food for Thought Journal

What is your relationship with school lunch? Do you eat school lunch or bring your own? (or afterschool snack, if in an afterschool program)

Why do we provide lunch in schools? Do you think it is a good idea to provide lunch in schools? Why or why not? More advanced students may research some of the controversial elements surrounding the school lunch program.

What is one thing you would you do to improve the school lunch program?

Going Further

Arrange an interview with a member of the cafeteria staff, to learn how they interact with the food system from their own perspective. This type of interviewing is addressed more fully in Section 2, below, but you may choose to do an initial interview as part of the School Lunch Laboratory unit.

Assessment Ideas

Portfolio: Create a week-long menu for your school cafeteria that fulfills the nutritional requirements of the school lunch program.

Quiz suggestions:

- Describe the situation that led to the creation of the school lunch program.
- Provide 3 sample menus and have students evaluate them in terms of the school lunch program nutritional requirements.
    - Explain how each menu does or does not fulfill the nutritional requirements of the school lunch program.
    - Estimate how far the items in one menu might have travelled to reach the cafeteria. How does this menu fit in to the food system? Are the items local or global?

Section 1 Connections to New York State Learning Standards

STATE STANDARDS COVERED	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	UNIT 6
English Language Arts	2,4	4	4	4	1	
Social Studies		4	3,4		4	1,3,4
Mathematics, Science, and Technology	2		3,7	2	2	
Health, Physical Education, and Family and Consumer Science				1	1	1

English Language Arts

Standard 1: Language for Information and Understanding
Students will listen, speak, read, and write for information and understanding. As listeners and readers, students will collect data, facts, and ideas; discover relationships, concepts, and generalizations; and use knowledge generated from oral, written, and electronically produced texts. As speakers and writers, they will use oral and written language that follows the accepted conventions of the English language to acquire, interpret, apply, and transmit information.

Standard 2: Language for Literary Response and Expression
Students will read and listen to oral, written, and electronically produced texts and performances from American and world literature; relate texts and performances to their own lives; and develop an understanding of the diverse social, historical, and cultural dimensions the texts and performances represent. As speakers and writers, students will use oral and written language that follows the accepted conventions of the English language for self-expression and artistic creation.

Standard 4: Language for Social Interaction
Students will listen, speak, read, and write for social interaction. Students will use oral and written language that follows the accepted conventions of the English language for effective social communication with a wide variety of people. As readers and listeners, they will use the social communications of others to enrich their understanding of people and their views.

Health, Physical Education, and Family and Consumer Sciences

Standard 1: Personal Health and Fitness
Students will have the necessary knowledge and skills to establish and maintain physical fitness, participate in physical activity, and maintain personal health.

Mathematics, Science, and Technology

Standard 2: Information Systems
Students will access, generate, process, and transfer information using appropriate technologies.

Standard 3: Mathematics
Students will understand mathematics and become mathematically confident by communicating and reasoning mathematically, by applying mathematics in real-world settings, and by solving problems through the integrated study of number systems, geometry, algebra, data analysis, probability, and trigonometry.

Standard 7: Interdisciplinary Problem Solving
Students will apply the knowledge and thinking skills of mathematics, science, and technology to address real-life problems and make informed decisions.

Social Studies

Standard 1: History of the United States and New York
Students will use a variety of intellectual skills to demonstrate their understanding of major ideas, eras, themes, developments, and turning points in the history of the United States and New York.

Standard 3: Geography
Students will use a variety of intellectual skills to demonstrate their understanding of the geography of the interdependent world in which we live—local, national, and global—including the distribution of people, places, and environments over the Earth's surface.

Standard 4: Economics
Students will use a variety of intellectual skills to demonstrate their understanding of how the United States and other societies develop economic systems and associated institutions to allocate scarce resources, how major decision-making units function in the United States and other national economies, and how an economy solves the scarcity problem through market and nonmarket mechanisms.

Section 2:
Food System Research to Action Project

This section provides a guide for conducting a food systems research project and taking action based on the results. Students are provided with tools for exploring their food system through internet and print searches, personal interviews, and conducting a survey. Next they will share their results with others and develop an action project. The activities follow a What?, So What?, Now What? framework in which students intentionally reflect on their experiences by thinking about what they learned, what it means to them, and what they will do next with this information.

In addition to addressing a number of learning standards across the curriculum, conducting real research in their own community supports the development of innovative problem-solvers, reflective thinkers, and engaged citizens.

NY State Learning Standards
Math, Science, and Technology 1, 2
Health, Physical Education, and Family and Consumer Science 3
Additional learning standards may be met depending on the research topics selected.

Assessment Ideas

Given that students will focus on an individual project in Section 2, we recommend collecting the following items for Portfolio-based assessment.

Portfolio Pieces:
Step 1: Research Topic worksheet from Activity 2
Step 2: Interview Script from Activity 3
Step 3: Survey Questionnaire
Step 4: Project showing what they have learned
Step 5: Food for Thought Journal Entry

Layout

Step 1: Finding Food System Facts is the background research phase of the project. This step provides tools and guidelines to locating and understanding data that has already been collected on the food system, and is therefore available for use and interpretation.

As students develop their food system research to action project, they will first build an awareness of some of the basic data currently available about our food system. This exploration of existing facts will help students as they begin to develop a research question and move on to their own data collection and analysis.

Step 2: Learning from People in the Food System guides youth through developing and conducting an interview on a topic of interest.

Step 3: Community Survey guides youth through the process of developing and conducting a survey in their community on a topic of interest.

Step 4: Sharing Food System Stories is the stage in which youth will compile their research findings and share them with their community

Step 5: Now What? In this step, youth will reflect on their work so far and consider their next steps.

Step 1:
Finding Food System Facts

Introduction

In the previous section, we considered some of the complex issues that are part of our food system. As students develop their food system research to action project, they will first build an awareness of some of the basic data currently available about our food system. This exploration of existing facts will help students as they begin to develop a research question and move on to their own data collection and analysis.

Learning Objectives

- Use a variety of resources to gather information about their food system.
- Interpret data and describe changes in the food system.
- Begin to consider why these changes have occurred.

Key Concepts

- **Population**
- **Commodities**
- **Community**
- **Cooperative Extension System**

Background

If you are using community resources, there are many helpful people working in your community. While searching for information, keep track of people's names and contact information. If youth have further questions later, they can contact those people again. Also, when searching out specific information it may take quite a few phone calls and transfers to find the right person to speak with. Students do not want to accidentally call the same people again and again! Seeking information over the phone is often a daunting task. Youth may wish to practice their phone skills on each other before calling strangers. They may also wish to start with people they may know in the food system. If email is an option for your students, this could be a viable way to communicate with professionals in the field as well. Lastly, youth should be prepared for a variety of reactions from the people contacted; some may be interested or excited to help, but some may be too busy or may even be rude.

Developing a research question can be daunting and complicated, and helping youth do so may seem overwhelming. It may be helpful to think of it as involving several steps, which may occur in any order and often repeat, including brainstorming topics of interest, learning information about those topics, listing the questions you have about the topics, and eventually selecting one topic about which you want to learn more.

Getting to the Core

One out of every ten pounds of apples grown in the United States comes from New York State. New York is the one of the largest producers of apples in the country, second only to Washington State. On average, New York farmers produce over one billion pounds of apples annually. That's enough to give every person who lives in New York City an apple every day of the year!

As impressive as this number sounds, New York used to produce even more apples. The record high year for apple production was 1896, when New York farmers harvested an astounding 54 million bushels or approximately 2.6 billion pounds. In contrast, the record low for apple production was 2 million bushels or approximately 100 million pounds in 1945. Apples continue to be a mainstay of New York farm production and remain one of America's favorite fruits.

Activity 1:
Introduction to the Search

As students seek out information about their food system, they can utilize a variety of resources. This activity is intended to help students find some of those resources and to orient youth to the process of information gathering. If time is limited, it will help if the teacher-leader searches for the information prior to the lesson. This will help in directing students in a way that is maximizes the use of time. Review Resources information as needed.

Time Estimate
45 minutes

Driving Questions

What can I find out about the food system using internet and telephone resources?

How can what we know about the food system inform research questions?

Materials

- photocopies of Food System Fact Hunt worksheet
- pens/pencils
- access to the Internet, telephone directory and telephone (optional)

Procedure

- Working in pairs, students will fill out the Food System Fact Hunt worksheet. It asks students to find basic information, including population data, the type and number of food system-related businesses in your community and the amount of food production that occurs. Students may know some of this information already, but will need to do some library and/or internet research to fill the worksheet out completely. See "resources" for suggestions of where students might begin looking for this information.
- Once complete, guide the students in reflecting on what they have already learned about the food system from Section 1 and now these facts.
- What new questions have emerged?
- Which questions now stand out as being critical or more relevant to your local area?
- Have youth looking through their Food for Thought journals from Section 1; these reflections may spark some important questions or topics as well.
- In pairs or small groups, have students list specific topics or questions that they might be interested in investigating. At this point, students are not settling on a research question, but simply brainstorming questions and topics of interest to them. Encourage them to think about things that seem important to them, such as their day-to-day interaction with the food system, what they eat or like to eat, their personal health, etc.

Related Links:

USDA-ERS: State Fact Sheets (US data) - Demographic information related to farms and agriculture for the United States. http://www.ers.usda.gov/statefacts/us.htm

USDA-NASS Charts and Maps (US Data) - National Agricultural Statistics Services provides charts and maps of agriculture in the United States. http://www.nass.usda.gov/Charts_and_Maps/index.asp

Census of Agriculture - Agriculture statistics by county, state, or zip code.
http://agcensus.mannlib.cornell.edu

USDA-ERS: State Fact Sheet (State data) - Demographic information related to farms and agriculture by state.
http://www.ers.usda.gov/statefacts

Oregon State University: GovStats (County data) http://govinfo.library.orst.edu/php/agri/index.php

Name: _____

Food System Fact Hunt Worksheet

Use the resources on the internet or in your library to find the food system facts below. Make sure to include the source of the data and the year the data is from.

	United States	My State is:	My County is:
Population			
# or % of people employed in farm or farm-related jobs			
% of total land area used for farmland			
Average age of farmers			
Number of farms in 1910			
Number of farms in 2007			
Number of farmworkers in 1910			
Number of farmworkers in 2007			
Top foods produced			
Top foods exported			

Interpreting these facts

How has the number of farms in your county, state, and nationally changed over time?

Why do you think this number has changed?

What other trends or patterns do you notice with farms in your local area (county), state, and nationally?

Why is do you think it might be valuable to know the foods produced and exported by your state?

What questions do these facts leave you with?

Activity 2:
Developing a Research Question

In order for students to direct their research, they need topics that will engage their unique interests and lead to further study. This activity aims to help students find those topics and narrow their choices down to a manageable possibility.

Time Estimate
20 minutes

Driving Question

What do I want to learn about the food system?

Materials

- Food for Thought Journal Entries
- paper and pens/pencils
- Food System Fact Hunt Worksheet from Activity 1, above

Procedure

- Have youth revisit their list of topics and questions that emerged in the last activity.
- Guide students in narrowing their research topics to more specific questions. Each student might select their own research topics, youth might work in small groups, or the group as a whole might agree on a topic that each individual will contribute to researching.
- On the Research Topic worksheet, youth will reflect on the research topic they have chosen and its importance to them. What do they want to learn about? Why is finding the answer to this question important or relevant? What does it mean in the larger context of community? Why does it matter? This last part may be particularly challenging for students and may require some extra guidance by the educator. Alternatively, you may chose to incorporate this piece more just after the research is complete and just before students develop their action project.
- The Research Topic worksheet will help to guide the next stage of research gathering.

Resources

The Craft of Research by Wayne C. Booth, Gregory G. Colomb, and Joseph M. Williams.

Name: _____

Research Topic

I am interested in learning more about…

Specific questions I have about this topic are….

1.

2.

I am interested in this topic because….

This topic is important to my community because…

What do I already know about this topic?

What do I want to know about this topic?

Activity 3:
Finding Food System Data

Now that students have started familiarizing themselves with how to search for local statistical data and developed a research question, it is time to start the search for specific food system data.

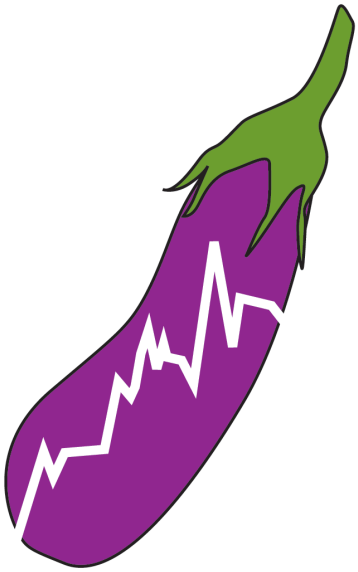
Time Estimate
45 minutes

Driving Question

What can I learn about my research topic?
What do I think about it?

Materials

- worksheets from Activity 1 and 2 (Food System Fact Hunt and Research Topic)
- photocopies of Background material as appropriate, access to the internet, library, and/or local phone books
- photocopies of 2-sided Journal
- pens/pencils



Procedure

- Again, this activity can be done using independent time or group time.
- Students will fill out the Two-Sided Journal worksheet. In the left column they will record the information they have found related to their research question or topic. This will be a specific fact and the source from which they found it. In the right column, they will reflect on what this means to them personally and to their research. Some questions to consider in completing the right column include:
    - Why is this fact relevant?
    - What do you think about it?
    - Does it surprise you?
    - Does it support what you think to be true about your research question?
- This will help students process the data in a meaningful way and lead them to make connections with the broader context of their food system studies.
- Have youth share their findings with each other, either in pairs or with the whole group.

Note: If you are using the Internet, there is a large amount of data available about many aspects of the food system. Included in the Resources material at the end of this step, you will find a list of websites with food system and agricultural facts that cover a variety of topics. Your local Extension office may also be a helpful resource.

Name: _____

Two-Sided Journal

Use the library, internet, or other resources to find out three new things about your research topic. In the left-hand column below, write the new things that you have learned. Don't forget to include the source (where you found this information)! In the right-hand column, explain what you think each piece of information means. Some questions to consider for "What I think it means" include:

- Why is this fact relevant?
- What do you think about it?
- Does it surprise you?
- Does it support what you think to be true about your research question?

Research Topic:

New Information	What I think it means
Source:	
Source:	
Source:	
Source:	

What else do I want to know about this topic?

Food for Thought Journal

Reflect on the process of searching for information.

- What information did you find easy or difficult to find?
- What surprised you about the information you found?
- When you shared with your partner or the group, what information did your partner or group share that was related to your research topic?
- What do you think about what you found out?
- What new questions did this new information leave you with?
- What was the most interesting thing that you learned?

Going Further

Students can hunt for a local newspaper article that pertains to some aspect of our food system. These can be shared as part of a class discussion, in a written response, or a transformed into a visual collage or drawing that summarizes the article and/or the students' response to the article.

Print out graphs students found during their research and have them write a paragraph interpreting what it could mean in relation to the food system.

Resources

Looking for specific information using Internet search engines can take a lot of time and sometimes produce little useful data. The websites provided contain links and lists of other websites that will be useful for investigating most aspects of the food system. The websites included in the Resources list may be helpful for finding specific information; however, they do not constitute an exhaustive list.

If this section is being done in a setting where the Internet is not accessible, most of the information you are looking for can be gathered by contacting state agencies. It will be most helpful to start your search by contacting your State Department of Agriculture and the Extension office of your state's Land Grant University. Many of the addresses and phone numbers of the state offices for the Northeast have been included below. These offices are responsible for the type of data that you will be looking for. These basic contacts will lead to the names and numbers of contacts able to give more specific information.

Web Resources

When searching these websites, it may help to look for places to click that say, "graphics," "state fact sheets," or for maps provided when you scroll down the page. These often provide an overview that can help to orient students in what can otherwise be an overwhelming sea of information. From these basic starting points you will find links to other places to find specific data.

United States Data - United States Department of Agriculture, Economic Research Service. Find U.S. information and statistics about animal products, specific crops, and more. http://www.ers.usda.gov/epubs/other/usfact/US.HTM
http://www.nass.usda.gov/

State Data - USDA Economic Research Service, State Fact Sheets.
http://www.ers.usda.gov/StateFacts/

Click on your state for information on
- Population, Income, Education, Employment, and Federal Funds
- Organic Agriculture
- Farm Characteristics
- Farm Financial Indicators
- Top Commodities, Exports, and Counties

Census of Agriculture State and County Profiles
http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/County_Profiles/index.asp

County - Census of Agriculture State and County Profiles
http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/County_Profiles/index.asp

Other
Your Food Environment Atlas - Explore this searchable map and its database of research to find facts about your state or county's "food environment"—proximity to grocery stores, number of fast food restaurants, school lunch participants, pounds per capita of fruits and veggies available, obesity rates, the price of milk vs. soda, and much more. http://www.ers.usda.gov/FoodAtlas/

Information on Farmers Markets
http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateN&navID=WholesaleandFarmersMarkets&leftNav=WholesaleandFarmersMarkets&page=WFMFarmersMarketsandDirecttoConsumerMarketing&description=Farmers%20Markets%20and%20Direct%20to%20Consumer%20Marketing&acct=frmrdirmkt

Graph on the number of operating farmers markets in the U.S.
http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateS&navID=WholesaleandFarmersMarkets&leftNav=WholesaleandFarmersMarkets&page=WFMFarmersMarketGrowth&description=Farmers%20Market%20Growth&acct=frmrdirmkt

Bureau of Labor Statistics Occupational Outlook Handbook - Search for information related to food systems careers. You can type in "farmer" into the search box and get a lot of information about what workers do on the job, training and education needed, wages, working conditions, and the projected outlook for this job in the future. This will also link you to other related occupational information, such as food scientist, agricultural inspectors, and purchasers of agricultural products. http://www.bls.gov/oco

U.S. Census Bureau
http://www.census.gov

Your local county extension office
http://www.csrees.usda.gov/Extension

Step 2:
Learning from People in the Food System

Introduction

This step in the project provides tools and guidelines for identifying people that students can interview to help answer their questions about the food system. Having the opportunity to interview people with first-hand experience can provide a more in-depth and personal understanding of the complexities of our food system.

The first step in planning to conduct a person-to-person interview is to identify people in the community who are involved in the food system and to explore how they are involved. The food systems models and people in the food system work from Section 1, Unit 2, Activity 3 will be useful for this lesson because it is important to think about people in terms of their particular part or function in the entire food system. The scope of these interviews may vary from briefly asking a few questions of a school lunch server to interviewing a grocery store owner, food processor, farmer, chef and/or restaurant personnel.

Getting to the Core of Asking Questions

If you had the chance to talk with an apple grower, what questions would you ask? What questions do you think a grower would like to answer? What kinds of questions might require an especially tactful or sensitive approach? These are all things to think about when preparing to interview someone, particularly a person you do not know.

In general, an interview should contain a variety of questions: easy-to-answer questions, thought-provoking questions, questions with in-depth answers, questions with short answers, and questions that are fun. In addition, the interviewer can choose different formats of questions to help keep the conversation interesting. Two commonly used formats are open-ended questions and multiple-choice questions. Some examples from both types of formats are shown below.

Open-ended questions:

How long have you been farming and have you always grown apples?

What varieties of apples do you grow and what are they usually used for?

To whom do you sell apples?

How long does it take for a tree to begin to produce fruit, and how many years is a tree harvested before it is replaced?

What is your favorite variety of apple and why?

Learning Objectives

- Identify at least one member of the community professionally involved, or otherwise committed to working, in the food system, i.e. community volunteers, activists, etc.
- Consider how and where to meet this person for an interview.
- Describe 2-3 ways to conduct personal interviews.
- Describe 2 interview settings.

Key Concepts

- **Food System**
- **Interview**
- **Close-Ended Questions**
- **Open-Ended Questions**

Background

Interviewing can be a complicated undertaking. However, the experience can help students make meaningful connections that take them beyond the classroom and out in to the world. Building good techniques for interviewing takes practice. Below are suggestions for how to conduct purposeful interviews.

Focus on open-ended questions
When an interviewer asks a question that yields a simple “yes” or “no” answer, they are limited in what they can learn. In order to practice asking questions that are open-ended, start with close-ended questions and work them into a more interesting form. For example:

Multiple-choice questions:

It has become more difficult for apple growers to earn a profit during your lifetime.

1 – Strongly agree
2 – Agree
3 – No opinion
4 – Disagree
5 – Strongly disagree

An apple a day keeps the doctor away.

1 – Strongly agree
2 – Agree
3 – No opinion
4 – Disagree
5 – Strongly disagree

Imported apples and apple products are a major source of competition for your business.

1 – Strongly agree
2 – Agree
3 – No opinion
4 – Disagree
5 – Strongly disagree

Agriculture would benefit if more young people considered a career in farming.

1 – Strongly agree
2 – Agree
3 – No opinion
4 – Disagree
5 – Strongly disagree

Perennial crops like apples are good for the environment and satisfying to grow.

1 – Strongly agree
2 – Agree
3 – No opinion
4 – Disagree
5 – Strongly disagree

"Do you enjoy your job?" might be more usefully phrased as:

"What do you like best about your job?"
"What are the three things you enjoy most about your day?"
"What about your job gives you the most satisfaction?"

Preparing for the Interview

Once the questions have been formulated, people identified, and a place has been decided for the interviews to take place, students are ready to practice interviewing on each other.

Help students decide on a time limit for the interview, so that the interviewees do not get tired of questions and answers.

Remember to ask permission if the interviews are to be videotaped or recorded.

Also, have a clear set of guidelines for where to conduct the interviews. Make sure students are always in a safe space for these experiences. This may require parent or teacher supervision and transportation. Outline guidelines with your students and parents that are appropriate for your group. These may include only interviewing in a public place such as the local library, or only with a parent chaperone, etc. Interviews may also take place via phone, videoconference, or email.

After Interviewing

Guide students in reflecting on what they have learned. Divide comments into two general categories: what was learned about our food system, and insights about the interviewing process.

There are a number of ways to express interview results. In Step 4, students will share their learning with the broader community beyond their classroom.

Activity 1:
Putting People in the Food System

Driving Question

What types of people work in the food system?

Time Estimate
5 minutes

Materials

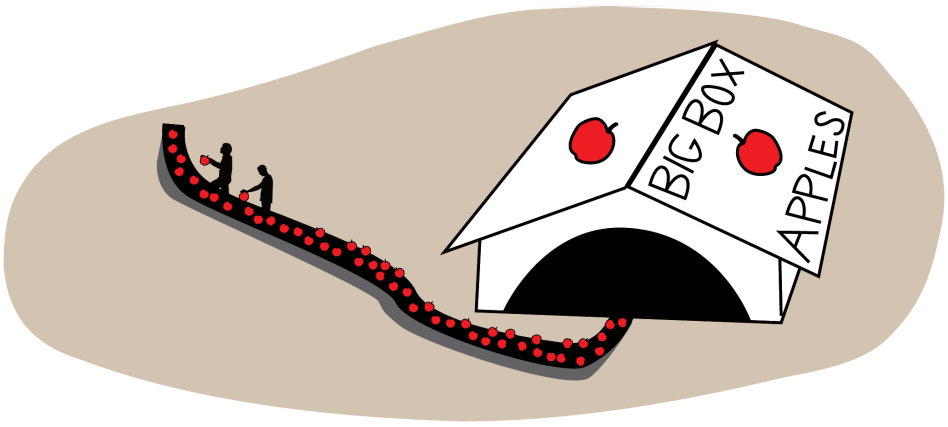
- "Steps in the Food System List" from Section 1, Unit 2, Activity 1
- list of people in the food system from Section 1, Unit 2, Activity 3
- paper and pens/pencils
- telephone directory (optional)
- food system models from Section 1

Procedure

- Review students' food system models and the people in the food system from Section 1, Unit 2, Activity 3.
- Now that students have been thinking about the food system for some time, they should be able to add to the list of people involved in the food system. Be sure that the list includes some people for each component of the food system. Consider that some individuals may participate in more than one component of the food system. (For example, a farmer grows food but also harvests it. A store manager may store as well as sell food.)
- Have students look at the Real Food Wheel and other food models; do these inspire any additional participants in the food system?

Related Links

U.S. Census Bureau, State & County QuickFacts - US Census data by state.
http://quickfacts.census.gov/qfd/index.html



Activity 2:
Knowing People in Our Food System

Driving Question

Who are the members of our own community doing the jobs outlined in Activity 1?

Time Estimate
25 minutes

Materials

- lists from Activity 1
- sticky notes, index cards, or construction paper cut like leaves (approximately 5 per person)
- tape
- writing board and markers or paper and pens/pencils

Procedure

- Create an information tree to identify and define the people in our community who are involved in the food system.
- Draw a large silhouette of a tree with limbs but without leaves. This can be on the chalkboard or on a large piece of paper. Label the limbs from each of the steps of the food system: Growing, Marketing, Processing, etc. Alternatively, if the group has created a group model of the food system, the drawing could be an outline of the model.
- Pass out leaves (sticky notes, index cards, or pre-cut construction paper leaves) and markers for students to write down the people they meet during everyday activities involved with food. For example: lunch server, mom/dad, grocery store clerk, farmer, etc. Remind students to consider the people they come across on weekends and after school, too.
- Students will then stick their notes on the tree limb (or place in the food model) that best categorizes the job that person does.
- Individuals on different "tree limbs" may be connected in some way; have youth draw lines representing these connections.
- Invite students to look at the lists created in the previous lesson. Which local people work in each of the jobs listed? Can additional people be added to the tree or model? Don't forget to include unpaid activities such as preparing the family meal. How many opportunities to work with food are represented?
- Ask students: Who on the tree could offer important insights to your research? Who are you most interested in interviewing? Why? Where might you meet with them for the interview (i.e. at home, at school, in the cafeteria, on a farm, etc.)?
- *Please note:* Discuss arrangements for meeting with interviewees at length with youth and include parents in the conversation. Be sure that interviews are conducted in a safe space with more than one person attending (individual or small groups of students with parent chaperones, at school with a teacher present, etc.). Outline this clearly with students. Alternatively, you may wish to select an individual or a group of people to interview from the tree and invite them all in for a panel question and answer discussion period. Interviews may also be conducted via email, telephone, or video.

Activity 3:
Preparation and Practice

Time Estimate
50 minutes

Interviewing can be easy or complex, depending on the needs of your group and the amount of time you have. You can easily tailor this activity to what is practical for your own situation. For example, interviewing can be as simple as developing some questions for family members or arranging time to talk to the lunch staff in the school cafeteria, or it can be much more elaborate and involve contacting your extension or county offices for help. Grocery store managers can be a great resource because they will often have information about local and regional farms, processors, packagers and distributors.

Driving Question

How can we learn information through interviews?

Materials

- paper and pens/pencils
- model interviews below
- samples of interviews from TV and radio

Procedure

- As homework, students will observe and take notes on interview techniques they see on TV or hear on the radio. Alternatively, share a few clips of interviews with your students in class. What do students notice about the interview? Who is involved? What does the interviewer do to draw information out of the person being interviewed?
- Ask students to describe different interview settings: phone, public event, on the street, at school, in a TV or radio studio, on location, etc. The idea here is for students to consider different settings for interviews that they might select when they conduct interviews of their own in a later activity.
- In pairs or small groups, have youth review Model Interview #1 and Model Interview #2. Questions for discussion:
    - What similarities do they notice between the two interviews?
    - What differences do they notice between the two interviews?
    - Which interview do they think gathers more information?
    - Which interview feels more like a conversation?
- Brainstorm techniques gleaned from watching and listening to sample interviews, such as body language and tone of voice in response to interviewee answers, timing, helping the interviewee to feel welcome and comfortable, etc. Generate a list of tips and techniques. For example:
    - Always tell the interviewee your purpose for conducting the interview.
    - Get their permission to take notes or record the interview.
    - Try to avoid “yes” and “no” questions.
    - Try to use questions that make the interviewee think and talk more.
    - Be observant of body language and tone of voice; these can serve to encourage or discourage responses.
    - Thank the interviewee for their time.

- Most interviews are one-on-one but whole groups can interview one person or a selection of people as a panel. This works well for a class or club situation. With your help, students will decide what form of interview to conduct and where it will take place. The location of the interview may affect the choice of interview technique you choose. If you decide to host a panel, see Background for information specific to this type of interview.
- Discuss questioning techniques (see Background). Working in pairs, students will try out the sample scripts and discuss what worked and what did not.
- Next, students will generate a list of questions to ask their specific interviewee, based on their research question. Youth can use the Interview Script worksheet to help develop their interview script. Practice interviewing each other, family members, and friends until students feel comfortable with the interviewing process and get necessary feedback on their questions.

Related Links

Interview Techniques - A brief overview of good interview techniques.
http://www.mediacollege.com/journalism/interviews

Model Interview #1

INTERVIEWER: Hi, my name is _____, and I'm doing a study about our food system.

FARMER: Hi, I'm _____, I am a farmer in _____(Town).

INTERVIEWER: Do you mind if I ask you a few questions about your farm?

FARMER: No, go right ahead.

INTERVIEWER: Do you like farming?

FARMER: Yes.

INTERVIEWER: What's your favorite part of the day?

FARMER: Lunch.

INTERVIEWER: Do you have cows?

FARMER: No.

INTERVIEWER: Do you eat locally grown foods?

FARMER: Sometimes.

INTERVIEWER: Thanks.

FARMER: You're welcome.

INTERVIEWER: Bye.

FARMER: Bye.

Model Interview #2

INTERVIEWER: Hi, my name is _____, and I'm doing a study about our food system.

FARMER: Hi, I'm _____, I am a farmer in _____(Town).

INTERVIEWER: Do you mind if I ask you a few questions about your farm?

FARMER: No, go right ahead.

INTERVIEWER: Is it all right if I take notes?

FARMER: Certainly.

INTERVIEWER: How long have you been farming in our community?

FARMER: I've been here most of my life.

INTERVIEWER: Can you tell me something about the people you do business with?

FARMER: Well, I do business with lots of different people. I usually buy my feed from _____, and then I often go to the local auto parts shop to buy the parts I need for my tractor. I also sell my products to different people, so there are many people that I work with.

INTERVIEWER: Can you tell me something about the people who buy your products, and where they're from?

FARMER: The company that buys my milk comes from Syracuse. I sell my apples to all my neighbors and friends, and to all our local supermarkets.

INTERVIEWER: What do you think are the benefits of your farm to our community?

FARMER: Wow, great question! Well, let me think here. I've hired five local people, so they have jobs. And, I've gotten to know them, and we're all friends, we've started up a small ball team with our family members. My farm is a habitat for wildlife. You'd be surprised at the number of people who tell me how beautiful the farm is. Come to think of it, my farm really does benefit the community a great deal.

INTERVIEWER: You've been really helpful. Would you mind if I called you later if I have any questions while I'm writing up my notes?

FARMER: No, not at all. In fact, I'd like that. Here is a phone number where you can reach me.

INTERVIEWER: Great. By the way, I'm going to be doing a project using all the information I've learned today. It will be on display at our community celebration in May. I will send you an invitation, and I hope you'll attend!

FARMER: That sounds like fun!

INTERVIEWER: Is there anything you'd like to add, or any feelings during this interview that you want to discuss?

FARMER: Well, it feels good that you're interested in what I do. Thank you!

Name: _____

Interview Script

What I am hoping to learn from this interview:

What I will say at the beginning of the interview (be sure to thank the interviewee for their time, tell them what you are hoping to learn from speaking with them, and ask permission to take notes or record):

Interview Questions:

1.

2.

3.

4.

5.

What I will say at the end of the interview (be sure to thank the interviewee for speaking with you):

Activity 4: Interview

Driving Question

What can I learn about my research topic from an interview?

Time Estimate
The time for this activity depends on the availability of the people the students choose to interview. Give students about 1 week to allow sufficient time to schedule and conduct the interviews.

Materials

- interview script from Activity 3, above
- pen and paper for taking notes
- tape recorder, if desired

Procedure

- Now students are ready to conduct their interview. Remind them to take careful notes during the interview. It may be helpful to record the interview, but students must get permission to do so. Impromptu questions can be some of the best. Encourage students to go with the flow of the interview.
- Students will conduct their interviews as planned in Activity 3
- After the interview, students should reflect on the process, either in pairs or as a large group. What went well? What would you do differently next time? Did you learn what you were hoping to learn?

Related Links

Interview Techniques - A brief overview of good interview techniques.

Food for Thought Journal

Reflect on the interview process and experience.

- What did you enjoy about your interviewing experience? What didn't you like?
- What did you learn from the interview about the food system that you didn't know already?
- Are there any question that you thought of to ask your interviewee after the interview was over?
- Were there issues raised by the interviewee that you would like to research more? If so, what?
- Who else would you like to interview?

Going Further

Write down your observations about the kinds of work that are part of the food system that you see when visiting a business or other setting. For example, when in a grocery store, write down all of the different kinds of work you observe going on that keep the store running smoothly. What are the kinds of work that needs to take place beyond the store in order for it to function properly? In the school cafeteria, what are the different jobs you see people doing? What other jobs are involved beyond the school walls that are necessary for lunch to be served everyday?

As an alternative to Activity 1, try this more mathematically intensive activity. Make

a list of every person you know from your community. This can be all of your family, neighbors, teachers, business owners, etc. Tally the number of names on your list. Earlier, you investigated your town's population. If you are working with a group, add everyone's lists together, not counting the people you may all know (for example, if this is a school group, it is likely you all know the same cafeteria workers). What percent of the community is the group connected with? If you wanted to collect or distribute information, what percentage of the community would you reach without meeting new people? For example, if there are 5 students in a group and each listed 20 people, then the group can reach 100 people. If there are 300 students in a local school and each could meet 20 people, the school itself could reach 6000 people. What percentage of the community is that? This can help you see how one person, or small group, can make an impact in their community.

Following your interview, write an article about it to share with the community via a newsletter or local paper.

Step 3:
Community Survey – Getting Ready

Introduction

Now that youth have talked with a community member directly involved in the food system, it is time to explore another way of getting information. In-person interviews are effective for gathering in-depth information about a topic from a small number of people. But in order to find out about the views of a larger group of people, we rely on other methods. By designing, distributing, and discussing a small survey, students can explore what the members of their community think about an aspect of the food system.

This is another step in the project that can be small scale, or elaborate, depending on your curricular goals and the needs of your group. It can range from surveying a school classroom and/or students' family members; surveying a grade level; distributing a survey to members of a community-based organization; surveying a target number of adults; or surveying the village, town, neighborhood, etc. on a larger scale. This step is designed to give students a sense of how questionnaires can be designed to give wanted information. If time is an issue, choose an easy target group, and ask a small number of questions.

Learning Objectives

- Select a topic for a survey
- Identify a survey sample within the community
- Develop questions for a short questionnaire

Key Concepts

- **Survey**
- **Population**
- **Sample**
- **Representative**
- **Subject**
- **Questionnaire**
- **Scaled Response**

Background

Why conduct a survey? The primary goal of a survey of a group of people is to describe attitudes, opinions, or views on a particular subject. Data is gathered from people in their natural settings using a questionnaire (one type of survey instrument) to obtain written or verbal responses. Systematically collecting similar data from each respondent allows us to explore the relationships among different answers. For example, you might assess the relationship between fruit and vegetable intake and the age of the respondents (i.e. how does intake change with age?).

Getting to the Core

So, you want to find out about what people in your community think about apples? By surveying a representative sample of people living in your community, you can find out bushels of information. What do you want to know? How many people like apples? Why they eat them? How often they eat them? Which varieties they like best?

In general, a survey involves a questionnaire. This "research instrument" can be distributed to your sample (some of the people in your community) by mailing a paper copy to them (mail survey method), calling them on the phone and asking the questions (telephone survey method), stopping them on the street or at a grocery store (in-person questionnaire method), or sending it to them via email (web-based survey method).

Surveys often use closed-ended questions. The options for answers are provided and the respondents choose the one answer that most closely reflects how they feel. You can also find out how important something is or how strongly people feel about issues by asking them to agree or disagree with statements that you write.

Surveys can take less time than interviews and can be an inexpensive way to reach larger numbers of people from a wider geographic area, although the information may not be as detailed or rich as from individual interviews. A "mixed methods" approach of combining interview results with data gathered from a quantitative survey using a questionnaire or structured interview guide can be a powerful tool in community decision-making, and in convincing community members and leaders about the value of a given topic. In any community we can often identify issues of concern to a great number of citizens. With a survey, we can gather information on those issues.

Here are some sample questions:

How often do you eat fresh apples?

- Once each day
- 1 to 2 times per week
- 3 to 5 times per week
- A few times a month
- Rarely
- I don't like apples

There are many ways in which apples are consumed. For each of the following, indicate how much you like it by circling the appropriate answer.

fresh whole apples
a lot a little not at all

apple sauce
a lot a little not at all

apple juice
a lot a little not at all

apple pie
a lot a little not at all

Planning a Survey

There are many items to consider when planning a survey. The primary guideline for this unit is to keep it simple and focused. The first thing to decide is who you want to describe and what you want to know about them. For example, if we want to know which fruits and vegetables are purchased most frequently in the town of Healthville, NY, a relevant population would be all the people in Healthville who do the food shopping for their household. Or, if you want to learn more about which fruits and vegetables are grown on farms in Garden County, VT, then the relevant population would be all the farmers in Garden County. If you want to know which locally produced fruits and vegetables are available at the grocery stores in Healthville, NY, the relevant population would be produce managers in the Healthville grocery stores.

In general, it saves time, effort, and money to get the information you want from some but not all of the people in your **population** of interest. When a small group of people is selected in order to find out something about the entire population, this smaller group is called a **sample**. The sample is usually selected randomly, so that it is more likely to be **representative** of the population.

There are many ways to survey a group of people who represent the population of interest. Some, like a mail questionnaire, will require a small budget for printing, envelopes and postage. Others, such as internet surveys, telephone surveys, hand delivery, or mailbox stuffing may require different resources. If the study population to be sampled happens to be community members with children enrolled in the local middle school, questionnaires could be hand-carried home with students. If the study population is shoppers at a local supermarket, and the store manager has granted permission, shoppers can be approached at the store entrance and recruited to fill out a short questionnaire. As soon as someone agrees to participate in a survey, he or she becomes a **subject** in the study.

Your Surveys Can Create Change!

The high school ecology club at a Massachusetts school conducted a survey that had immediate results. An informal survey asked teachers and seniors five questions related to school policy. Out of two hundred surveys distributed, one hundred and seventy-six came back. Only five people said they would not be willing to pay an additional five cents for using biodegradable paper cups in the cafeteria. The survey results were presented to the faculty and student government and, as a result, Styrofoam cups and trays were no longer used at school. All it took to convince school administrators to change their policy was the evidence of a survey (Lesko, 1992).

Questionnaire Development

In Step 1, students gathered facts and data about our food and agriculture system. From Step 2, students learned more about our local food system from people who actually represent that food system. The community survey provides a chance to explore the attitudes within our community about some aspect of what we have learned. There will be many potential topics to explore in the survey. The first step is for students to revisit their research question/topic and their interview notes to decide the focus of the survey. Next, they will develop specific questions to ask on the questionnaire that will help to answer their research questions or better understand their research topics.

Potential Survey Topics

- Interest in farmers markets
- Factors influencing fruit and vegetable purchases
- Important qualities of area food stores
- Preference for locally grown foods
- Concern about hunger and food security in the community
- Perceptions about school meals
- Concerns about changes in agriculture
- Interest in cooking and shopping

There are several different kinds of questions that can be used in a questionnaire. A questionnaire can use all of these types or just a few.

- Open-ended questions, in which participants write their own response
- Yes/no responses
- Scaled responses (on a scale of 1 to 5, rate your willingness to drive an extra 5 miles to purchase food directly from a farmers' market, with 1= not at all willing, 3 = somewhat willing, 5 = very willing.)
- Closed-ended responses that allow the participant to choose the response that best suits them, giving them a line for the "other" response. ("I typically shop at the following: large supermarket, small independent grocery store, farmers market, gourmet food shop, food cooperative, other")

The key to good questions is that there is no doubt on the part of the respondent what the question is asking. A good way for students to make sure the questions are not misinterpreted is to pre-test the questionnaire with a small number of people who are like those who will be participating in the survey. In general, closed-ended responses will be easier to analyze and interpret than open-ended responses.

Here is a checklist to help guide the development of questions:

- Is the question specific or vague? You will want to be as specific as you can, so no one can misinterpret the question. For example, "Where do you get your food?" is less clear than, "Check each of the following places where you buy food for your household. a) grocery store; b) food cooperative; c) farmers market; d.) food wholesale outlet, e.) food bank, etc."
- Do the questions contain jargon or abbreviations? If so, clarify and describe if the phrase is likely to be unfamiliar. For example, if you planned to use CSA, or Community Supported Agriculture, in a question, you should define it first.
- Is the terminology you are using familiar to everyone?
- Are the questions biased? For example, "Do you agree that the school lunch program is lacking in quality?" is loaded with bias. "Describe the food quality in the school lunch program" is less biased.
- Are any questions too probing, demanding, or difficult to answer? Keep them simple.

- Are you trying to ask two questions in one space? Keep your questionnaire clear and concise by having your respondents answer one question at a time.
- What level of expertise will someone need to understand the questionnaire? Do not assume that participants have a breadth of knowledge about the community food system.
- How far back are you asking your respondents to remember? Be sure that any questions related to a time frame are appropriate. Questions related to buying habits on a week by week basis, as opposed to relating to a full month or year, will be easier for your respondents.

Five Types of Scaled Responses to Consider:

- Endorsement: Definitely true, true, don't know, false, definitely false
- Frequency: Always, very often, fairly often, sometimes, almost never, never
- Intensity: None, very mild, mild, moderate, severe
- Influence: Big problem, moderate problem, small problem, very small problem, no problem.
- Comparison: Much more then others, somewhat more than others, about the same as others, somewhat less than others, much less than others

These are suggestions. Students will likely come up with some of their own scaled response options.

Source: Fink, Arlene. How to Ask Survey Questions. Sage Publications, Inc. 1995.

Questionnaire Format

Questionnaires can be complex and in booklet form, or simply one to two pages of paper. For this activity, try to keep questions all on one sheet, two-sided at most. This can be easily reproduced with a copy machine. Students will choose a title that reflects their purpose, and provide directions for how to answer the questions. Remember to use the same answering procedure throughout the questionnaire. Students can use lower case letters for the questions, and upper case letters for responses, or use plain type for questions, and bold type for answers. Here is an example:

Do you drive or take public transportation to purchase your food? (Please circle letter)

a. DRIVE
b. USE PUBLIC TRANSPORTATION
c. OTHER (Explain: _____)

If you ask demographic questions, such as age or gender, group them into one brief section. These usually appear at the end of a questionnaire. Group questions together that are similar, so that the questionnaire flows instead of jumping around.

Include contact information (name, address, phone or email, organization) so that people can get in touch if they have concerns or questions. This also lets them know if an organization is sponsoring the questionnaire (your school or 4-H club, for example).

A sample questionnaire is provided at the end of this Step.

References

Fink, Arlene. How to Ask Survey Questions. Sage Publications, Inc. 1995.
Harmon, A. Harmon, R. and Maretzki, A. 1999. The Food System: Building youth awareness through involvement. The Pennsylvania State University College of Agricultural Sciences.
Lesko, W. S. 1992. No Kidding Around! America's Young Activists are Changing the World, and You Can Too. Information, USA, Inc. Kensington, MD.

Activity 1: Choosing the Topic

Time Estimate
15 minutes

There are several ways to generate interesting questions to ask about the food system. Issues and topics can come from articles in the local paper, stories heard on the radio, or conversations around the dinner table. Earlier, you chose to investigate a specific aspect of the food system. Then, you either continued to explore the same topic or picked a new area to find out more about in the interview, based on your interests. This lesson is an opportunity to find out what the community thinks about either one of these previous topics, or perhaps a new topic.

Driving Question

What can I learn about my research topic from a survey?

Materials

- results from Steps 1 and 2 of Section 2 and Food for Thought Journal entries from both Sections
- paper and pens/pencils

Procedure

- Discuss some examples of surveys. For example:
  - Survey young people about their knowledge of shopping and what is local
  - Survey a school community to explore their views as to how the cafeteria might accommodate locally grown foods, or to find out where the food for their school cafeteria comes from
  - Survey a neighborhood to see whether they would buy produce grown by the young people
  - Survey produce department managers of local grocery stores to learn about the variety of local or organic produce carried in their store.
- Emphasize that it is important to have a specific target audience and questions focused around a topic.
- Have youth make a list of the most interesting or surprising points they have discovered during Steps 1 and 2.
- Given what they know and what they have learned so far, what questions do youth still have about their research topics? What would they most like to research further? Collect the group's ideas and discuss together.

Related Links

Overview: Survey Research – Although geared for a university-level audience, this site offers a comprehensive treatment of surveys.
http://writing.colostate.edu/guides/research/survey/index.cfm

Activity 2:
Choosing a Survey Sample

Driving Question

Who are we going to survey? How will we decide?

Time Estimate
10 minutes

Materials

- paper and pens/pencils
- optional: it may help to have access to a local phone directory

Procedure

- Review students' research topics. Have each individual/small group/large group (depending on how you are conducting the activities) think about who it is that would be able to help them learn more about their research topic. They should decide on the overall group or community of interest whose opinions they wish to know more about (for example, food shoppers, residents of a particular neighborhood, parents of school students, school students themselves, teachers of the school, supermarket employees, local food service providers, etc.).
- Select some of these people, otherwise known as a sample, from the group. Pick enough individuals so that the sample represents the larger group. The challenge is to pick a small enough sample so that the survey is possible and not too expensive, but large enough to tell you something about that group's viewpoint.

Related Links

Survey Design - Although designed for corporate surveys, this site includes useful thoughts on sample selection and advantages and disadvantages of different types of surveys. http://www.surveysystem.com/sdesign.htm

Activity 3:
Preparing a Food System Survey

Driving Questions

How will we get the information we want?
What questions will we ask in our survey?

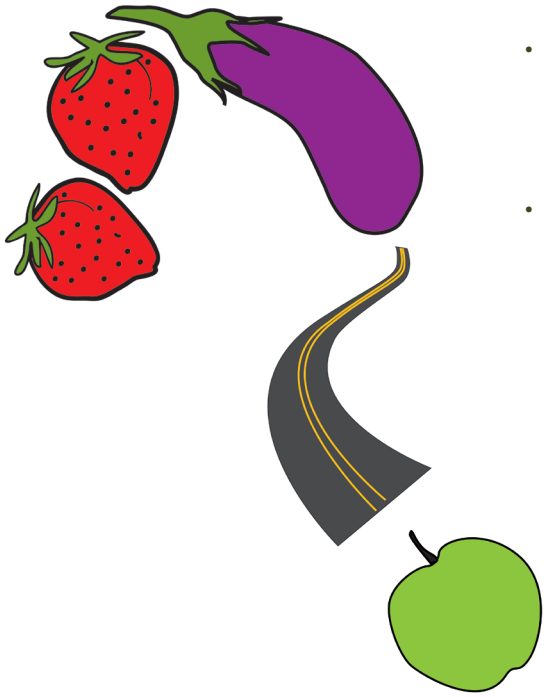
Time Estimate
45 minutes in class preparing the surveys. Allow one week to conduct the survey and collect the data.

Materials

- materials from Activities 1-2 and Steps 1 and 2 of this section
- writing board and markers
- paper and pens/pencils

Procedure

- The first step is to look back to the research topic. What is the most critical question that you are interested in finding out about in your survey? Write this question first, so that it guides the questions that will follow. For example, a main question for the survey might be "Where does your family do most of its grocery shopping?"
- From this main question, have youth brainstorm what specific details they want to learn about. Questionnaires can have different sections to address specific subtopics relating to the main question. For this survey, try to keep your questions focused and simple.
- Review the different types of questions that can be included in a questionnaire. Think of examples of questions for each type. Write these on a board or on paper.
- After you have several questions written down, go through each, deciding on question type and wording. Also decide on what order to put the questions in. Look over the Background information on surveys and the example below to get a sense of how different orders of questions can make a difference. In what order do you want your subtopics?
- When you are satisfied with your set of brief, focused questions, give your survey an exciting title! This can come quite easily from the overall topic or question of interest.



For example, below is a segment from a real questionnaire used to gather ideas about Pennsylvania's Food System that relate to the subheading "cooking and shopping:" (Harmon et al. 1999)

If you did the shopping and cooking for your family…

1. How important to you would it be to reuse plastic bags, paper bags and other food containers?
Not at all important 1 2 3 4 5 very important

2. How important to you would it be to take your own bag for shipping (either canvas or paper)?
Not at all important 1 2 3 4 5 very important

3. How important to you would it be to recycle food packaging (aluminum cans, glass bottles, or plastic)?
Not at all important 1 2 3 4 5 very important

4. How important to you would it be to compost your food scraps?
Not at all important 1 2 3 4 5 very important

- A sample survey is included at the end of this step, which the educator or youth may use as an example or for inspiration.
- When students have developed their surveys, they need to decide how they will conduct the surveys (actually get people's answers). Will they send them home with each other? Will they pass them out in the shopping mall? Will they use an internet survey tool?
- Once they have made these decisions, they can type them up neatly (if surveys will be mailed or handed out on paper) or input them into an internet survey tool.

Related Links

If You Don't Know, Ask - This site focuses on survey development for libraries, but it gives some good examples of how to improve survey questions so that you get answers that are useful.
http://www.sla.org/content/Shop/Information/infoonline/2002/jul02/dinerman.cfm

Survey Development - This site has a number of tools and useful tips for survey development and implementation. Specifically, the Survey Development Worksheet may be a good way to help students (and educators) organize their thoughts about a survey. http://www.dartmouth.edu/~saper/tools/surveydev

Food for Thought Journal

In the journal, you will have time to reflect on your experience preparing a survey for your community.

Going Further

Actually conduct the surveys prepared in this step!

Name: _____

Survey Development Guide

Research Topic:

Main Question:

Other Questions:

1.

2.

3.

4.

5.

Sample Questionnaire

The Healthville Community Food System: A Survey of Citizen Interests and Concerns

Introduction
Over the past month, students in Mr. Brown's 6th grade social studies class gathered facts about the food and agriculture system in Bounty County. Did you know that there were 300 farms in the early 1900s and now there are only 75 farms in our county? Did you know that 5 farmers go out of business each year? We'd like to know how you feel about the state of farming and agriculture in Bounty County.

This questionnaire is designed to take just a few minutes of your time to complete. Your responses are very important to us! Thank you for participating in this survey!

1. The first set of questions has to do with farms in Bounty County. To what extent do you agree or not? (Please circle number).

Question	Agree		Don't Know		Don't Agree
A. Agriculture in Bounty County is important to the local economy.	1	2	3	4	5
B. Having farms nearby makes my community a better place to live.	1	2	3	4	5
C. It's unimportant to have local farms because all my food can be imported.	1	2	3	4	5
D. To save local farms it is better to buy foods grown by local farmers.	1	2	3	4	5
E. I would be willing to pay 5% more for my food if doing so helped keep local farmers in business.	1	2	3	4	5
F. If farmers go out of business it's because they are bad managers.	1	2	3	4	5
G. Cafeterias in schools, hospitals and companies should serve food grown by local farmers.	1	2	3	4	5

2. The second set of questions has to do with food shopping and eating.

Question	Agree		Don't Know		Don't Agree
A. In the summer and fall I buy some of my food from a farmers' market.	1	2	3	4	5
B. I prefer food stores that offer a variety of locally produced foods.	1	2	3	4	5
C. If the price is higher for local foods, I will not buy them.	1	2	3	4	5
D. Supermarkets should offer locally grown foods on a regular basis.	1	2	3	4	5
E. A diet made up totally of foods that are produced locally would not provide enough variety to maintain good health.	1	2	3	4	5
F. I'd like to buy fruits and vegetables grown by local farmers, but the quality is not as good as imported produce.	1	2	3	4	5
G. Locally grown produce doesn't taste as good as imported produce.	1	2	3	4	5
H. Locally grown produce doesn't look as good as imported produce.					

3. The last set of questions has to do with you and your household.

A. What is your gender? (circle one) FEMALE MALE

B. What was your age at your last birthday? ____ years

C. What is your level of education? (circle)

1 Completed some high school
2 Received high school diploma
3 Some college or technical school
4 2-year college or vocational school
5 4-year college or university degree
6 Advanced degree

D. Have you ever lived on a working farm? (circle) YES NO

E. Have you ever grown a vegetable garden? (circle) YES NO

Step 4:
Sharing Food System Stories

Introduction

In this step, youth will share what they have learned about the food system with each other and with the community

Getting to the Core

A few more apple facts:

1. Apples are in the rose family

2. It takes the energy from 50 leaves to produce one apple

3. The world's largest apple peel was created by Kathy Wafler Madison on October 16, 1976, in Rochester, NY. It was 172 feet, 4 inches long.

Learning Objectives

- Prepare a visual aid (poster, slides, etc)
- Share their learning with the community

Key Concepts

- **Visual Aid**
- **Presentation**
- **Community**

Background

At this point, after completing Section 1 and most of Section 2 of this curriculum, youth have learned a lot about the food system. Now it is time for them to share their knowledge with their community. In the academic and professional worlds, it is common for people to share their learning with their colleagues. Youth will now have an opportunity to share what they have learned about the food system.

Sharing of knowledge can take a variety of forms. These can include:

- A formal presentation
- A poster session
- A community conversation
- A play
- Something else entirely!

Activity 1: Ways to Share

Driving Question

How can we share what we have learned?

Time Estimate
10-20 minutes, depending on how much input students have in the decision

Materials

- none

Procedure

- Individually or as a group, brainstorm what you have learned about the food system so far.
- Discuss who else in the community might be interested in learning this information. (parents, farmers, other students, grocer, etc)
- Discuss ways that you might share what you have learned with these people. Discuss presentation formats that youth have experienced before.
- Decide what format the group will use to share their learning (this could be an executive decision, or a group decision). Some options include:
    - A presentation evening, in which each person or group presents their learning before an audience
    - A poster session, or science-fair approach, in which each person or group creates an exhibit and visitors walk by and discuss informally
    - A community conversation – discuss informally with members of the community
    - A skit
    - Something else entirely – use your imagination!
- Decide where you will share this information – The community center? The classroom? Town hall?
- Will you need to invite people to come?

Activity 2: Creating Visual Aids

Driving Question

How can visual aids help us to teach others what we have learned?

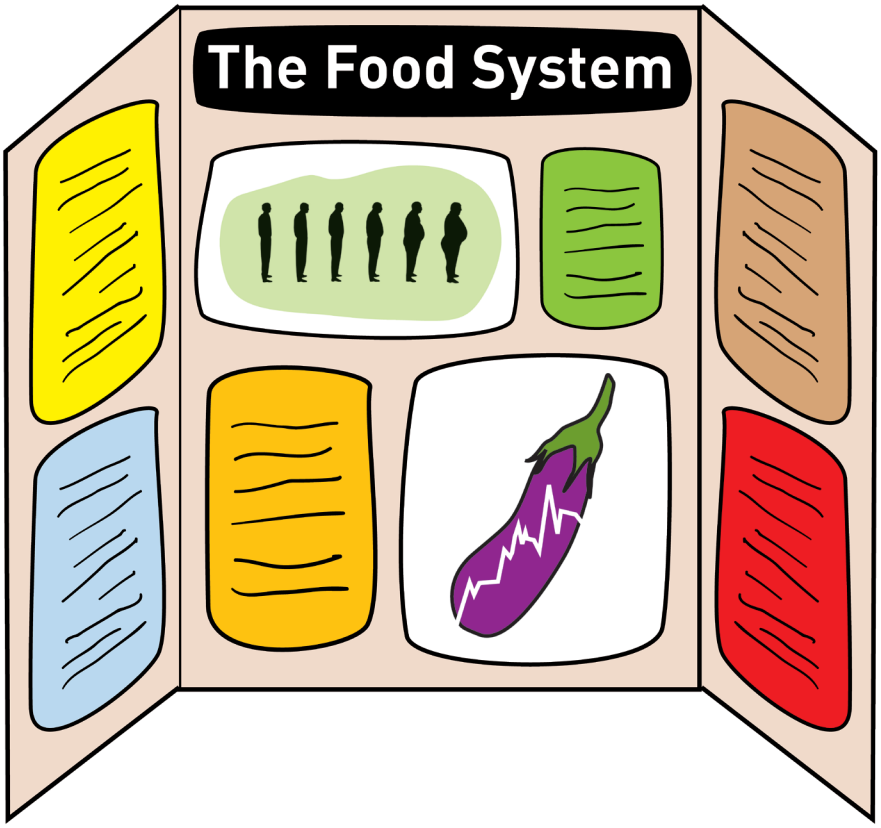
Time Estimate
The time for this activity depends on the type of visual aids students make. The more time you allow students to work on the aids, the more detailed they can be. Class time can be supplemented with work at home.

Materials

- art supplies

Procedure

Based on the decisions made about format and venue above, youth will create visual aids to assist in sharing their knowledge. These might take the form of a poster, a set of slides, a mural, etc. Again, you are limited only by your imagination!



Activity 3: Planning

Driving Question

What do I need to plan in order to share what I have learned?

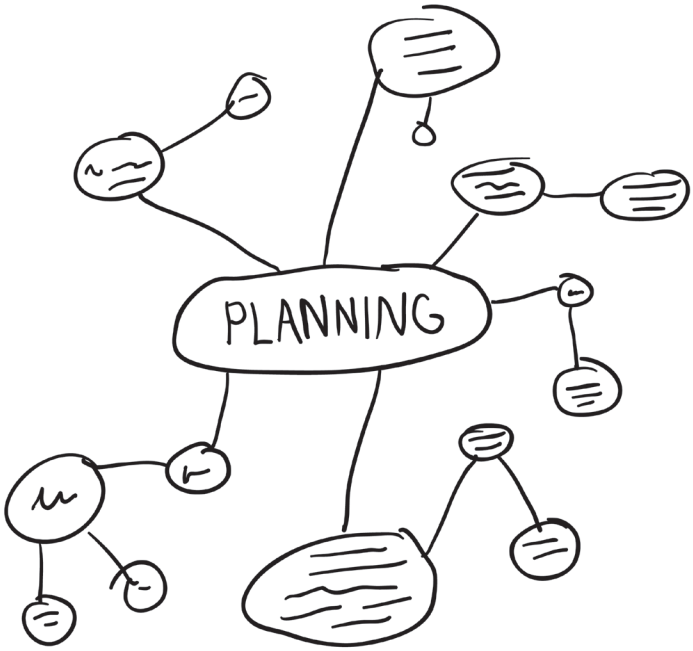
Time Estimate
The time for this activity depends on the number of projects or groups, and the type of presentation. Allow 45-90 minutes depending on your group.

Materials

- none

Procedure

- Youth will prepare for their presentation or other form of sharing.
- If they are doing a formal presentation, they should practice for each other.
- If they are doing a skit, they should rehearse it.
- If a science-fair approach, they might prepare by asking each other questions about their exhibits.



Activity 4: Sharing

Driving Question

How do I share what I've learned?

Time Estimate
Time depends on the presentation setting.

Materials

- visual aids created in Activity 2

Procedure

Students will share their learning with their community, as planned in the earlier activities of this step.

Food for Thought Journal

How did the presentation go?
Did you enjoy doing it? What did you like or not like about the process?
Did you learn anything new in the process of sharing?

Going Further

Based on their experience with presenting their knowledge, have youth improve their presentations, and then share their information again, in a different context.

The Daily Local

Friday, January 6, 2012

Students discover food system

After surveying farmers, grocery store owners, distributors, chefs and others who work in our interconnected food system, local students shared their findings with the public through an evening showcase of their research projects.

Hosted by the library and featuring local food from farms within a 30-mile radius, the event offered the 8th graders a chance to educate their families and others about how our food choices impact our health and the environment.

Step 5: Now What?

Introduction

In this step, youth will reflect on what they have learned and what it means to them, and will think about what actions they want to take with regard to their learning or to the food system moving forward. This step takes the form of an expanded Food for Thought Journal.

Getting to the Core

Apples are often considered a symbol of knowledge, probably because Christian tradition holds that Adam and Eve ate an apple from the tree of knowledge.

Food for Thought Journal

What is the most interesting thing you have learned about the food system?
What have you learned about yourself through this process?
Does what you have learned matter to you or to your community? Why or why not?
What else would you like to know about the food system?
What would you like to change about the food system?
How do you think you could do this?

Going Further

A next step for interested youth might be to build on their learning to create an action plan for change they would like to see in their food system. Then, go out and implement it! For example, YouthGrow (http://blogs.cornell.edu/garden/get-activities/signature-projects/youth-grow/) is a leadership program for youth interested in transforming their local food systems.

Glossary

Annuals - plants that are planted each year and last for one season.

Bar Graph - a way to visually display data. For survey data, each bar would represent a discrete response. The height of the bar reflects the score, value, or proportion for each response category.

Close-ended questions - a question for which responses are limited to a given set of choices.

Commodity - a product supplied across a market without differentiation based on who produced it. Individual instances of the commodity are seen as equivalent regardless of the producer. Commodities are typically basic natural resources and agricultural products, such as iron ore, petroleum, rice, and wheat.

Community - a group of interacting people of various kinds in a common location.

Consuming - a step in the food system, it can mean the act of actually eating or simply purchasing food. A consumer is a person who can go to the store, select which product they want and purchase it.

Cooperative Extension System – a network of non-formal education across the United States designed to provide practical, research-based learning from the land-grant universities to the community. Each state and territory has a land-grant university and a network of cooperative extension offices, which offer education focusing on areas such as agriculture, food, community development, and youth development.

Cost –expenditure, such as money, time, labor, etc, required for the attainment of a goal. Often used synonymously with “price” such as the cost of a loaf of bread. But also is used to mean the total resources (time, money, labor, land, water, soil, etc.) required or impacted in the attainment of a goal.

Dietary Guidelines - Since 1980 and every five years since, the United States Department of Agriculture (USDA) and Department of Health and Human Services (DHHS) have jointly published the Dietary Guidelines for Americans. The Dietary Guidelines Advisory Committee, consisting of prominent experts in nutrition and health, reviews current scientific and medical knowledge and recommends revisions to the Guidelines. The Departments then review, edit and publish the revised Guidelines. The Dietary Guidelines provide the basis for Federal nutrition policy and nutrition education activities. Specifically, the Guidelines provide advice for healthy Americans ages 2 years and above about food choices that promote health and prevent disease. Information about the process and people involved in developing the latest edition of the Dietary Guidelines for Americans (http://www.cnpp.usda.gov/dietaryguidelines.htm) is provided by the USDA Center for Nutrition Policy and Promotion.

Disposing, composting and recycling - the step in the food system following consumption in the home or at a restaurant. Uneaten food can go into the garbage or can be composted and turned into a fertilizer for a home garden or a farmer’s field. Food packages also have different fates with different environmental impacts. All food packages, of course, can be thrown away and added to the solid waste accumulated by a community. Alternatively, many food packages can be recycled. Materials such as paper, cardboard, plastic, aluminum, glass and tin can be recycled depending on the services available in a community.

Distribution - the process of dividing up, spreading out, and delivering food to various places.

Farm products - such as fruits and vegetables - can be transported with little or no processing from their original sources and directly to schools, supermarkets, other food stores, or farmers’ markets for sale as whole fresh products. Commonly, such farm products are taken to a central warehouse first, for further distribution. Alternatively, farm products can

be transported to a site where they will be transformed in some way, combined with other ingredients, made into food products, packaged and then distributed through a number to marketing channels. Most of what we find in grocery stores today has been transported great distances and has undergone some degree of processing. We currently transport food by truck, train, boat, and plane. Some foods (such as tomatoes and bananas) that will be transported a significant distance are harvested before full ripeness so that they will withstand the bumps along the way.

Externality - a cost or benefit generated by an agent (say a farmer, or a truck driver) that does pay for or benefit from to that agent or end-user. The pollution generated by transporting food is not paid for by the trucking company in the price of the fuel, or by the consumer in the price of the food. The beekeeper is not compensated for the benefit his/her bees provide to a neighboring orchard in the form of pollination. These costs and benefits are "externalized" and not paid for directly at the grocery store register.

Farm to School - Farm to School connects schools (K-12) and local farms with the objectives of serving healthy meals in school cafeterias, improving student nutrition, providing agriculture, health and nutrition education opportunities, and supporting local and regional farmers.

Food culture - Food culture encompasses what we eat, how we eat it, who prepares it and how, and who it is eaten with. Different regions around the country and around the world have different and unique food cultures.

Food customs - the habits or usual practices surrounding the growing, preparing, and eating of food. As with food culture, food customs vary around the world.

Food Guide - a nutrition education tool that graphically represents how recommendations on nutrient intake are translated into recommendations on food intake. Foods are clustered into groups that are similar in nutrient composition. A food guide provides recommendations on what food groups to choose from and the number of servings of food from each group in order to get a nutritionally adequate and wholesome diet. The USDA MyPyramid (http://www.mypyramid.gov/) is the current federal food guide that helps consumers implement the Dietary Guidelines. There are other food guides, including The Northeast Regional Food Guide (http://nefoodguide.cce.cornell.edu/), designed to help consumers select a nutritional complete and seasonally varied diet composed of foods produced and processed in the Northeastern United States.

Food Group - the grouping of foods that are similar in nutrient composition. On the USDA Food Guide Pyramid there are 6 primary food groups: Bread, cereal, pasta, tortillas, whole grains; Vegetables; Fruits; Dry beans, nuts, eggs, poultry, fish, meats; Milk, yogurt, cheese; and Fats, oils, sweets.

Food Label - the label on a food package that provides information about its manufacturer and its nutritional content. The Food and Drug Administration regulates the information that is allowed on labels for foods marketed in the U.S. (See FDA's Food Labeling Guide: http://vm.cfsan.fda.gov/%7Edms/flg-toc.html.)

Food Miles - the distance food travels from where it is grown or raised to where it is ultimately purchased by the consumer.

Foodprint - the amount of land (and other resources) needed to supply a person's food needs.

Food Production - involves many of the activities that take place on a farm, at an orchard, in bodies of water, or in greenhouses and fish-farm tanks to produce our food. Food production depends on the "input" of several resources, both natural (soil, water, climate, seeds, and human labor) and human-made (machinery, fuel, fertilizers, pesticides). A farmer owns or rents land to plant crops, or tend animals. The inputs required vary depending on what is being grown or raised and the type of agricultural system that is in place. For example, many of the pesticides and fertilizers common in most of our agriculture are not allowed in organic agriculture.

Food security - refers to the availability of food and access to it. Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe, nutritious, and culturally appropriate food for an active and healthy life. Food insecurity exists in the absence of food security.

Foodshed - refers to the area from where food is produced to where it is consumed

Food System - the interdependent parts of the system that provides food to a community. This includes the growing, harvesting, storing, transporting, processing, packaging, marketing, retailing, and consuming of the product. Some or all of these steps in the food system may be within the community but they also may be part of the global or regional system instead.

Food values - the personal values that, with other factors, guide individual food choices. In an ecological model of food-related behavior, food values are considered factors within the individual (as opposed to social or environmental factors, for example). Examples of values that might influence food choices include environmental stewardship, cost, convenience, justice, ethnic background, and human and animal rights.

Global Food System - A food system whose components may take place anywhere in the world. National and international distributers distribute food in the global food system. On average, food in the global food system travels over 1000 miles from were it is produced to where it is consumed.

Greenhouse - a building, typically of glass, that is used to grow plants outside of their normal season.

Growing - the process of preparing the soil, planting, maintaining the food item to be harvested. There are a variety of ways to grow products depending on the culture and climate. Large corporate farms may use chemically manufactured pesticides to maintain their crop while a local farmer may use other plants as pesticides.

Growing Season - the period of time between when a seed or a start is planted and the when it is harvested.

Harvesting - the process of reaping a food product from the earth. A variety of harvesting methods are used across the world from hand picking to large machinery that can harvest large portions at once.

Harvest Calendar - a calendar that indicates the period of the year when crops are being harvested. Many harvest calendars also provide information about when a crop is available from local harvest. This period is usually quite a bit longer than the harvest period. For example, see the New York State Harvest Calendar (http://www.agmkt.state.ny.us/HarvestCalendar.html).

Health claim - claim about the relationship between a nutrient or food and a disease or healthrelated condition, such as calcium and osteoporosis, and fat and cancer.

Ingredients - individual elements that form a mixture (food product).

Input - something introduced into a system or expended in its operation to attain a result or output.

Interdependence - mutual dependence between two or more entities.

Interview - a conversation between two people where questions are asked by the interviewer to obtain information from the interviewee. An interview may be part of a survey.

Interviewer Effects or Interviewer Bias - effects on the respondent's answers in an interview that are produced by characteristics of the interviewer (including the interviewer's attitudes or physical characteristics like sex or race).

Local Food System - a food system in which food is produced, processed, and distributed in a small area; food is often, but not always, marketed directly to consumers or institutions by producers.

Marketing - labels and pictures on the boxes and containers in which food is packaged. A large portion of the money used to buy the products goes to the development of attractive images to encourage the consumer to choose one product over another. The marketing step researches what people are attracted to and finds ways to show the consumers their products by television, newspaper, and magazine advertisements.

Model - a small object that represents another larger object or concept. Models can help us understand complex entities like food systems.

National School Lunch Program - a federally-assisted meal program operating in public and nonprofit private schools and residential child care institutions. It provides low-cost or free lunches to children each school day.

Natural Resources - something from the earth that we can use to perform or create something we need or want. Most people know that oil and gas are natural resources, but soil, water and air are also natural resources required to produce food.

Nutrition - the process through which people consume food and use it for growth and living.

Nutrition Facts - a chart required on food products that provides nutritional information to consumers.

Open-ended questions - a type of question on an interview that does not limit the respondent's response to any pre-selected alternatives.

Output - something that is produced by a system. Outputs can be desirable products, such as crops from a farm system, or undesirable, such as nitrogen run-off from fertilizers used on a farm.

Packaging - the step in the food system in which food is put into containers that will be presented to the consumers. The packagers receive the food from the processors or the farms and put them in paper, foil, plastic, cans, etc. for distribution to stores and markets.

Perennials - plants that will bear fruit for several years before needing to be replaced with new plantings.

Pie Chart - a circle that is divided into portions (pieces) that represent the different possible responses to a question. The circle, or the whole pie, represents all the people who responded to the question. The pieces reflect how many of that total responded to the possible answers.

Population - the total number of individuals occupying an area or making up a whole. A designated part of a universe from which a sample is drawn; also, the aggregation of people or other research subjects to which one wishes to generalize his or her research.

Presentation - showing or explaining concepts to an audience.

Processing - the step in the food system that involves everything done to change the food form from its original, such as, cutting, freezing, boiling, canning, etc. A food can be prepared in a variety of ways for a variety of uses. For example, a processing plant may receive apples to process into applesauce or apple juice.

Questionnaire - a research instrument consisting of questions and other prompts to gather data from respondents. A questionnaire is a type of survey, when the questions are asked in a paper or computerized format.

Regional Food System- a regional food system serves a state or other region. Networks of farmers supply regional retailers and distributors.

Response Rate - the number of completed interviews or questionnaires divided by the number of eligible respondents in the sample.

Retailing - the step in which food is transported to market. This may be at a family owned grocery store or a franchised supermarket.

Sample - a small group of people selected in order to find out something about the entire

population. The sample is usually selected randomly, so that it is more likely to be representative of the population.

Scaled Response - a survey response option in which respondents are asked to state the strength of their opinion on a scale. For example: On a scale of one to ten, how much do you agree with this statement?

Season - the period of the year during which a food item is freshly available

Serving size - the basis for reporting each food's nutrient content. It is uniform and reflects the amounts of a food people actually eat.

Shelf life - the amount of time a food will maintain quality at room temperature

Storing - keeping food items in a climate controlled environment until it is used. For example, this is done with apples in the northeast in order for local apples to available throughout the winter months. Some foods are more perishable so they cannot be stored for a long period of time while potatoes can be kept for many months.

Subject - someone who agrees to participate in a study.

Survey Research - the research strategy where one collects data from all or part of a population to assess the relative incidence, distribution, and interrelations of naturally occurring variables.

Survey - the instrument used to collect data in survey research. A survey may be conducted in person, by telephone, on paper, or online. A questionnaire is a paper or online survey. An interview survey is one conducted in person or by telephone.

System - an interdependent group of items that form a unified whole. A system is a group of interacting, interrelated, and oftentimes interdependent elements that function together as a complex, unified whole. A core concept is that a change in one element of a system has an impact, either directly or indirectly, on one or more additional elements in that system. Systems theory provides a holistic perspective for examining the boundaries of a related set (or sets) of elements, delineating subsystems, considering relationships among subsystems, and exploring the tendency toward a stable state of equilibrium (Sobal, et al., 1998). Systems theory rejects the idea that components of any system should be, indeed can be, treated or considered in isolation from other related components or elements of the system. The focus is on relationships or processes at various levels within a system (Buckley, 1967).

Transporting - the step in the food system that brings the food product from the producing farm or storage facility to the processing facility or right to the market if it is to be sold fresh. This can be by air, truck, train or barge. In the instance of a farm stand, the farmer may bring the food up to the stand by tractor thereby significantly reducing the transportation involved.

U-pick - a marketing approach in which consumers visit a farm to harvest their own fruits and vegetables. Also called Pick-your-own.

U.S. Census Bureau - a part of the government that conducts surveys to determine the population number and the aspects of that population in the United States.

Visual Aid - a picture or object that helps viewers to understand information being presented.

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Additional Resources

Funding Opportunities

Donors Choose
http://www.donorschoose.org
Our mission is to improve public education by empowering every teacher to be a change-maker and enabling any citizen to be a philanthropist. Our vision is a nation where students in every community have the resources they need to learn. DonorsChoose.org invites "front-line educators" in public schools to identify the needs of the students they serve. Such front-line educators include teachers, librarians, guidance counselors, school nurses and full-time teachers who also act as coaches. These educators must work directly with students and teach full time. Here's how it works: public school teachers from every corner of America post classroom project requests on DonorsChoose.org. Requests range from pencils for a poetry writing unit, to violins for a school recital, to microscope slides for a biology class. Then, individuals can browse project requests and give any amount to the one that they choose. Once a project reaches its funding goal, we deliver the materials to the school.

SARE Youth Grant Program
http://www.sare.org/ncrsare/cfp.htm
Youth and Youth Educator grants are an exciting new part of the Farmer Rancher Grant program. Their purpose is to provide opportunities for youth in the North Central Region to learn more about Sustainable Agriculture. There are two options: 1. YOUTH GRANTS. These are grants for on-farm research, demonstration, or education projects by youth ages 8-18. Research and demonstration projects are for hands-on efforts to explore sustainable agriculture issues and practices. Education projects can involve teaching others about sustainable agriculture or attending a sustainable agriculture conference, workshop, or camp. $400 maximum. 2. YOUTH EDUCATOR GRANTS. These are grants for educators to provide programming on sustainable agriculture for youth. $2,000 maximum.

Georgia Pacific
http://www.gp.com/gpfoundation/grantprocess.html
We're looking for opportunities that will make a real impact and deliver tangible, sustainable results in those key areas that align with our philosophical principles and are the cornerstones of strong communities: Education, the Environment, Entrepreneurship and community Enrichment.

Bonnie Plants 3rd Grade Cabbage Program
http://www.bonnieplants.com/CabbageProgram/tabid/81/Default.aspx
Each year, Bonnie Plants distributes free cabbage plants to third graders across the country to foster an interest in gardening and the environment. Cabbages are delivered to students whose teachers have signed up to participate. Students in these third grade classrooms each get their very own cabbage to plant, take care of and harvest. The cabbages produce oversized heads, making the process even more exciting for kids. As part of the program, Bonnie gives a $1,000 award to one student in each state.

Global Re-leaf
http://www.americanforests.org/global_releaf/grants
American Forests is always looking for quality tree-planting projects to be funded by our Global ReLeaf Forests ecosystem restoration program. We are particularly interested in partnering with private and public sector organizations and agencies to plant trees and improve the environment in projects that would otherwise not be feasible. We support projects that plant the right trees in the right places for the right reasons.

Jenny's Heroes
http://www.jennysheroes.com/index.shtml
Grants of up to $25,000 to improve your community.

NEA Foundation Student Achievement Grants
http://www.neafoundation.org/pages/educators/grant-programs/grant-application/student-achievement-grants
The NEA Foundation provides grants of $5000 to improve the academic achievement of students in U.S. public schools and public higher education institutions in any subject area(s). The proposed work should engage students in critical thinking and problem solving that deepen their knowledge of standards-based subject matter. The work should also improve students' habits of inquiry, self-directed learning, and critical reflection.

Captain Planet Foundation
http://www.captainplanetfoundation.org/default.aspx?pid=1&tab=about
The mission of the Captain Planet Foundation is to fund and support hands-on, environmental projects for children and youths. Our objective is to encourage innovative programs that empower children and youth around the world to work individually and collectively to solve environmental problems in their neighborhoods and communities. Through environmental education, we believe that children can achieve a better understanding and appreciation for the world in which they live.

DoSomething.org
http://www.dosomething.org/grants
http://www.dosomething.org/sharesomething/fund-your-project/plum-guidelines

American Honda Foundation -
http://corporate.honda.com/america/philanthropy.aspx?id=ahf
Grants to help meet the needs of American society in the areas of youth and scientific education, while strategically assisting communities in deriving long-term benefits.

The Braitmayer Foundation
http://www.braitmayerfoundation.org/guid.htm
The Foundation is interested in K-12 education throughout the United States. Of particular interest are curricular and school reform initiatives and the preparation of and professional development opportunities for K-12 teachers. Grants of up to $35,000.

Toshiba America Foundation
http://www.toshiba.com/tafpub/jsp/home/default.jsp
Toshiba America Foundation (TAF) is currently accepting applications for grants to support innovative projects designed by math and science teachers to make their own classrooms more exciting and successful for students.

America the Beautiful Fund
http://www.america-the-beautiful.org/free_seeds/index.php
If your food system project extends to planting your own, this organization provides free seeds.

Toyota
http://www.toyota.com/tma/about/community/orgForm.do?foundation
http://www.nsta.org/pd/tapestry
Toyota TAPESTRY Grants for Science Teachers program offers grants to K–12 science teachers for innovative projects that enhance science education in the school and/or school district. Grants are awarded for innovative classroom projects in the fields of environmental education, physical science, literacy and science education.

Slow Food in Schools
http://www.slowfoodusa.org/index.php/programs/details/in_schools
Slow Food in Schools supports local projects as they create meaningful relationships between young people and food. By placing an emphasis on hands-on experiences, community interaction, and the pleasures of the table, Slow Food in Schools projects help to strengthen the food communities of tomorrow by engaging youth today.

Community Foundation Locator
http://www.cof.org/whoweserve/community/resources/index.cfm?navItemNumber=15626#locator
Find local foundations in your community that may be interested in providing funding.

Foundation Center
http://foundationcenter.org
Learn about foundations that may be interested in providing funding.

Farm to School
http://www.farmtoschool.org/fundingopps.php
Lists a variety of funding opportunities, including opportunities by state.

Conferences and Events

Farm to Cafeteria Conference
http://farmtocafeteriaconference.com

The Reel Food Film Festival

Eco Farm
http://www.eco-farm.org
Hosting educational conferences, training programs and on-farm events.

Life Lab professional development, workshops, and conferences
http://www.lifelab.org/professional.php

Strengthening the Roots: Food & Justice Convergence
http://realfoodchallenge.org/STR2010

Cooking up Change Healthy Cooking Contest
http://healthyschoolscampaign.org/event/cookingupchange/2010/welcome.php

Real Food is Video contest
http://video.farmtoschool.org/
Create a short video that completes the phrase “Real Food is...” and you can win $1,000 for your school food project.

Listserves and Newsletters

COMFOOD listserve
http://www.foodsecurity.org/list.html

Cream of the Crop e-newsletter
http://cfaitc.org/cotc

Farm to School and Garden Research Consortium
http://datadorksunite.ning.com

Films and Videos

The Greenhorns
http://thegreenhorns.net
The Greenhorns is a documentary film that explores the lives of America's young farming community -- its spirit, practices, and needs.

Dirt!
http://www.dirtthemovie.org
DIRT! the Movie brings to life the environmental, economic, social and political impact that the soil has.

Food Inc

Where Gardens Grow
http://vimeo.com/1438173
"Where Gardens Grow" is a thirty-minute children's film intended for distribution in science centers and educational outlets around the world. The film centers around an abandoned lot in the city that is transformed into a community garden by the hard work of a group of kids. Through an empowering story and the magic of time-lapse photography, the film intends to inspire children around the world to nurture the nature around them.

Fridays at the Farm
http://vimeo.com/2100402
Feeling disconnected from their food, a filmmaker and his family decide to join a community supported organic farm. As he photographs the growing process, the filmmaker moves from passive observer to active participant in the planting and harvesting of vegetables.

Data Dorks Unite
http://datadorksunite.ning.com/video
Two videos presenting panel discussions on research on school gardens and farm to school programs.

Farm to school videos
http://video.farmtoschool.org
A number of videos relating to schools and food projects.

The Garden
http://www.thegardenmovie.com
A documentary about a community fighting to save their 14 acre garden in South Central LA. Running time: 80 min.

Media that Matters: Good Food
http://www.mediathatmattersfest.org/watch/goodfood/
A collection of short films on food and sustainability.

Two Angry Moms
http://www.angrymoms.org
Amy Kalafa, a concerned mom and filmaker, and Susan Rubin, a school food activist, team up to fight for better school food.

King Corn
http://www.kingcorn.net
A documentary about two friends that decide to grow their own corn in Iowa and discover shocking things about our food system. Running time: 90 min.

Real Food NOW!
http://www.bc.edu/clubs/realfood/realfoodnow.html
This is a short video that explains Real Food Challenge and aims to get students involved in taking the challenge. Running time: 5:30 min.

Additional Links

Food Print Mapping

Life Cycles Food Miles - Learn about and calculate your food miles. Food miles are the distance food travels from the farm to your plate. http://lifecyclesproject.ca/initiatives/food_miles

Local Foodshed Mapping Tool for New York State - The Local Foodshed Mapping Project investigated the capacity of agricultural land in New York State to meet the food needs of the state's population centers. The Local Foodshed Mapping Tool is an internet map server (IMS) that provides a means for interactively exploring results from this study. http://www.cals.cornell.edu/cals/css/extension/foodshed-mapping.cfm

Diets and NY's Ag Footprint - Article reporting a Cornell University study on the "foodprint" size of different types of diets. http://www.news.cornell.edu/stories/oct07/diets.ag.footprint.sl.html

Media Literacy and Advocacy for Nutrition and Health Education - A PDF list of resources and references on media literacy and advocacy in the fields of nutrition and health education. http://www.nycnen.org/pdf/mlrrc.pdf

Eat Low Carbon Diet Calculator - Allows you to drag-and-drop various foods into a virtual pan to determine carbon emissions of different meal choices. http://www.eatlowcarbon.org

Climate Change and the Food System

National Wildlife Federation's Gardener Guide - This comprehensive site will help you find out how wildlife and plants are affected by global warming, about updated garden zone maps and America's top invasive species. http://www.nwf.org/gardenersguide

Climate and Farming - This site provides resource materials that help farmers make practical and profitable responses to climate changes. Subjects include an overview of climate science and indicators of climate change in the Northeast, effects on crops, livestock, weeds, pests and pathogens, and cost-effective strategies for farmers to reduce greenhouse gas emissions and enter the renewable energy marketplace. http://www.climateandfarming.org

Cool Foods Campaign - Want to reduce global warming? Join the "Cool Foods" Campaign and help take a bite out of global warming by changing the way you eat. http://www.coolfoodscampaign.org

Food and Climate Change - Recent evidence about the contribution of food and farming to climate change. http://www.sustainweb.org/foodandclimatechange

World Food Crisis

FAO: Hunger - Information on hunger worldwide, including charts and an interactive hunger map. Also includes a link to the FAO publication, The State of Food Insecurity in the World. http://www.fao.org/hunger/en

Women shoulder heaviest burden in world food crisis - Gender, the global food crisis, and the World Food Program. http://www.wfp.org/stories/women-shoulder-heaviest-burde-global-food-crisis

Food Crisis World Bank - The World Bank's site on the global food crisis. http://www.worldbank.org/foodcrisis

The World Food Crisis in Historical Perspective - Considers proximal and distal causes of the world food crisis. http://www.globalresearch.ca/index.php?context=va&aid=14378

World Food Situation - The Food and Agriculture Organization of the United Nations' site dedicated to the world food situation. http://www.fao.org/worldfoodsituation/wfs-home/en

Local Foods

Local Food Directory - This site provides education about food miles and the environmental and economic impacts of imported foods. It also serves to connect British Columbians with local farmers, producers, and food processors. http://www.localfooddirectory.ca/foodshed/geobrowser

Community Alliance with Family Farmers - The Community Alliance with Family Farmers advocates for California family farmers and sustainable agriculture. Includes an online local food guide. http://www.caff.org

Bringing the Food Economy Home - Article on building a local food system. http://www.spcottawa.on.ca/ofsc/bringing_the_food_economy_home. html

Know Your Farmer Know Your Food - This is a USDA-wide effort to create new economic opportunities by better connecting consumers with local producers. It is also the start of a national conversation about the importance of understanding where your food comes from and how it gets to your plate. Today, there is too much distance between the average American and their farmer and we are marshalling resources from across USDA to help create the link between local production and local consumption. http://www.usda.gov/wps/portal/knowyourfarmer?navid=KNOWYOURFARMER

Migrant Farmworkers

Cornell Farmworker Program - http://devsoc.cals.cornell.edu/outreach/cfp

Migrant farmworker communities in the US - http://www.migranthealth.org/farmworker_communities/farmworkers _in_us.php

Migrant Farmworkers: Our nation's invisible population - http://www.extension.org/pages/Migrant_Farm_Workers:_Our_Nation%27s_Invisible_Population

Justicia for Migrant Workers - http://www.justicia4migrantworkers.org/index.htm

BOCES Geneseo Migrant Center - http://migrant.net

Nutrition

Nutrition Explorations - Interactive learning activities to engage students in nutrition, healthy eating, physical activity, and positive self-esteem. The program features entertaining ways to explore and foster healthy living habits through a series of curriculum-based resources for students in kindergarten to grade 8. http://www.nutritionexplorations.org

Mission Nutrition - Includes nutrition lesson and activity ideas as well as food games for students. http://www.missionnutrition.ca/missionnutrition/eng

Food and Mental Health - The Food and Mental Health Project addresses the many implications of the growing evidence linking what we eat to the way we feel and behave. http://www.sustainweb.org/foodandmentalhealth

Eat Well Be Well - Health and nutrition activities for kids. http://www.eatwellbewell.org/kids

Garden-Based Learning

Cornell Garden-Based Learning - Cornell Garden-Based Learning is housed in the Department of Horticulture at Cornell University. Its program encompasses programs, activities and projects in which the garden is the foundation for integrated learning and discovery across disciplines, through active, engaging real-world experiences that are relevant to children, youth, adults and communities. http://blogs.cornell.edu/garden

Rebel Tomato - This site was created by the American Community Gardening Association as a resource for people involved in youth gardening including educators and youth themselves. The site provides information about youth gardening and features several interactive components that are designed to get people exited and talking about gardening. http://www.communitygardenwizard.com

KidsGardening A site of the National Gardening Association for youth, families, and educators involved in gardening. http://www.kidsgardening.com

School Garden Wizard - A guide to creating and using a school garden.
http://www.schoolgardenwizard.org

Garden Mosaics - Connecting youth and elders to investigate the mosaics of plants, people, and cultures in gardens, with a focus on science. Created by the Department of Natural Resources at Cornell University. http://www.gardenmosaics.cornell.edu

AHS - Youth Gardening - The youth gardening site of the American Horticultural Society.
http://www.ahs.org/youth_gardening

Life Cycles Questions about School Gardens - Answers to common questions about school gardens.
http://lifecyclesproject.ca/initiatives/growing_schools/school_garden.php

Food System Curricula

Food For Thought: A Food Sovereignty Curriculum - Food for Thought and Action: A Food Sovereignty Curriculum helps students understand how the food system works, its failures, and the hopeful alternatives that are blossoming throughout the world. This collection of education-for-action exercises and factsheets was developed by Grassroots International and the National Family Farm Coalition to help build the food sovereignty movement in the United States. http://www.grassrootsonline.org/publications/educational-resources/food-thought-action-a-food-sovereignty-curriculum

Sustainable Food Systems Curriculum - This ten-class curriculum helps to increase food literacy and give students a better understanding of food systems. It is designed to be taught by a local farmer who can share his/her experiences, but can easily be adapted.
http://www.round-river.com/curriculumhome.html

Rethinking School Lunch Guide - The RSL guide provides a planning framework that contains tools and creative solutions to the challenges of improving school lunch programs, academic performance, ecological knowledge, and the well-being of our children. In its chapters, accessible below, experts and practitioners highlight goals and challenges, showcase success stories, and offer resources for further exploration.
http://www.ecoliteracy.org/programs/rsl-guide.html

The Food Project - The Food Project offers a number of curricula for purchase or download surrounding food security, community building, and connecting youth with food and farming.
http://thefoodproject.org/books-manuals

Food Farming and Community - The Food, Farming and Community curriculum is designed for adults who are interested in but not particularly knowledgeable about food systems and

sustainable agriculture. It could be used by educators to learn about food systems prior to teaching students, could be used directly with older students or could be adapted for use with younger students. http://www.foodfarmingandcommunity.org/curriculum/index.php

Toward a Sustainable Agriculture - A curriculum on sustainable agriculture, designed for high school students, but could easily be adapted for younger students. Each module can stand alone or be taught as part of the series. http://www.cias.wisc.edu/curriculum/index.htm

Feeding Minds Fighting Hunger - An international classroom for exploring the problems of hunger, malnutrition and food insecurity. Feeding Minds Fighting Hunger is designed to help equip and encourage teachers, students and young people all over the world to actively participate in creating a world free from hunger. You will find lesson modules for teachers, resources and activities for young people and an interactive forum for exchanging information and experiences around the world. http://www.feedingminds.org

The Farmer Grows a Rainbow - This site provides teachers with classroom-ready resources to improve nutrition education among Pre-K-5th grade students. Includes general information and grade-specific materials. http://www.agclassroom.org/rainbow

Growing a Nation - A social studies program designed to complement high school curricula, focusing on the role of agriculture in American history. http://www.agclassroom.org/gan

Cotton's Journey - An integrated study unit on the history, growth cycle, harvest and processing of cotton. Although not food, this unit traces the path of cotton from field to fabric. http://www.cottonsjourney.com/default1.asp

California Foundation for Agriculture in the Classroom - A variety of downloadable agriculture-related lesson-plans. http://cfaitc.org/LessonPlans/LessonPlans.php

Great Big Crunch - An annual cross-Canada school event using the apple as a point of departure for activities on nutrition, cross pollination, composting, food systems, and more. A variety of activities are available. http://www.foodshare.net/school-crunch.htm

Center for Agroecology and Sustainable Food Systems - An online resource for teaching about sustainable agriculture. http://casfs.ucsc.edu/education/instruction/esa/index.html#howto

National Farmers Union - The National Farmers Union provides curricula on stewardship, citizenship, and local foods, as well as a coloring book of activities. Lesson plans are separated by age group, available for grades 1-12. http://nfu.org/about/education/education-materials

Media Literacy

Just Think - A number of programs and curricula to teach youth about media literacy. http://www.justthink.org/for/?c=youth

PBS Media Education Activity Ideas - Activity ideas for educators by grade level. http://www.justthink.org/for/?c=youth

Shaping Youth - Teaching kids media literacy and label lingo. http://www.shapingyouth.org/?p=188

Children's Food Campaign - The Campaign wants to improve young people's health and well-being through better food – and food teaching – in schools and by protecting children from junk food marketing. http://www.sustainweb.org/childrensfoodcampaign

Other interesting links

http://www.redtomato.org

http://www.caff.org

http://casfs.ucsc.edu

http://www.spcottawa.on.ca/ofsc/en/resources.asp

http://www.cuesa.org/sustainable_ag/A-Z/index.php

http://www.ceeonline.org/greenGuide/food/FoodIntro.aspx

http://gardenclassroom.googlepages.com/home