



Figuring Out Our Food System¹

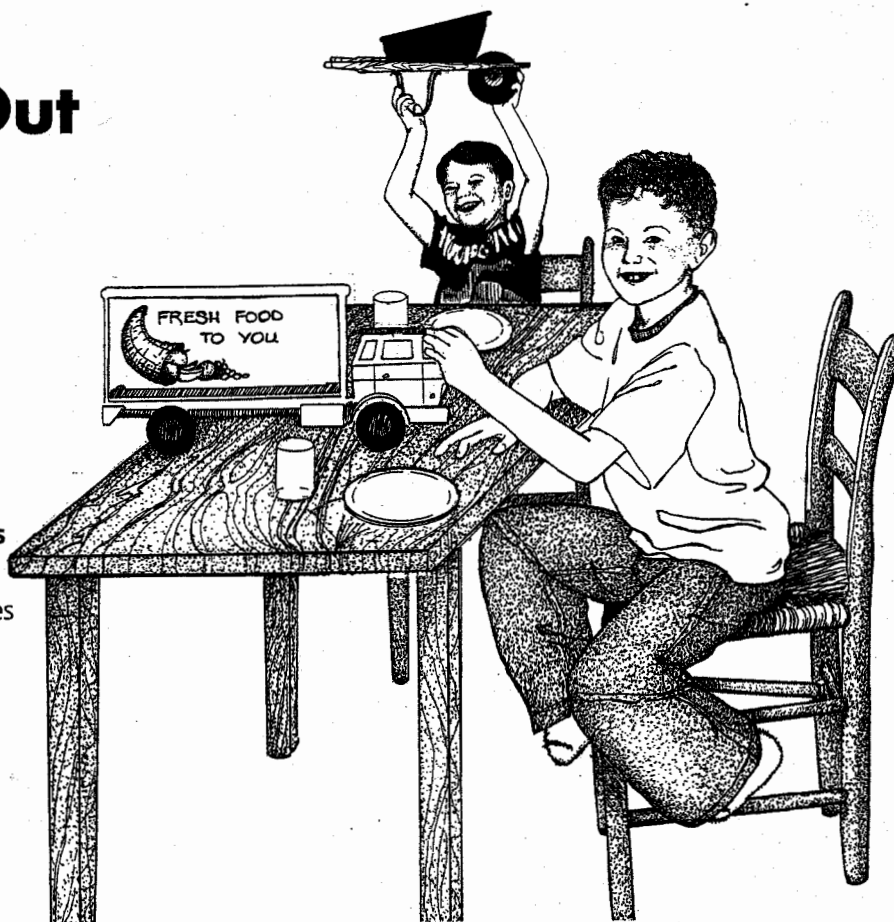
Create a food system collage

Recommended Grades: 3–6

◆ Visual and Language Arts

"A sustainable agriculture does not deplete soils or people."

—Wendell Berry



Goal

Learn what's involved in food production and delivery to understand the connection between healthy soils and healthful foods.

Key Points

- ◆ Our food system is powered by the sun and works because of natural cycles and countless human workers, including farmers and farm workers, food processors, shippers, grocers, consumers, and waste handlers.
- ◆ The **HEALTHY FOODS FROM HEALTHY SOILS** [nutrient] cycle is an example of a very basic food system—a sustainable system where nutrients are returned to the soil.
- ◆ Ecology is the study of relationships within a natural community or system—what happens to one member will have some impact on another.
- ◆ We can look at our food system ecologically speaking—what happens to one part of the system will have an impact on another part.

- ◆ Our food choices really can make a difference—what we buy and eat is like a "vote" for the product, the farmers, companies, or systems that produced it.

Background

In the late 1800s, a farmer WAS the agricultural or food system—or at least was the largest part—doing nearly everything on the farm.² Saved seeds were planted for cash crops, food, and animal feed; crops were harvested and stored at or near the farm; and the farmer sold products from the farm—milk, vegetables, hay, etc. The "middle man" played a very small role. Now the farmer makes up the smallest portion of the agricultural system.

Picture the agricultural system in three parts: (1) "Inputs"—the people and businesses who manufacture and sell goods and services to farmers (farming machinery, animals, pesticides, fertilizers, seeds, loans, etc.); (2) the farmers who grow the food; and (3) the "marketing" people and businesses who

¹ Adapted with permission from *Project Seasons* by Deb Parrella, 1995.

² "Sustainable Agriculture and Public Policy" by Stewart Smith, *Maine Policy Review*, April 1993.



process, transport, store, advertise, and deliver food from the farm to the consumer.¹ Each sector costs money and makes profits. There are benefits and costs to these changes.

Following World War II, agriculture became increasingly industrialized (more an agri-business than agri-culture). Economics forced small farms to sell out. The large farms that resulted from the consolidation of these small farms now use more and bigger equipment, greater amounts of gasoline, chemical fertilizers, and pesticides, increased live-stock management, and new high-yield hybrid or patented seed varieties. Fewer farmers can produce more food using less land. From an economical perspective, agri-business is a success—but this success comes at a price: diminished farm communities, contaminated wells from pesticides and fertilizers, depleted soils, and the loss of autonomy for the farmer. At 9 percent or less of the agri-business or industrial-agriculture system, farmers have the least power and are dependent upon the input and marketing sectors for their livelihood. As consumers, we support the current agricultural system and reap the benefits of abundant, inexpensive food. We also bear the costs—but not at the grocery store, since these social and environmental costs are not reflected in the prices we pay at the checkout counter. Our food system and its alternatives contain thought-provoking fodder for teachers and students to chew on. Don't try to digest it all at once!

What You'll Need

Magazines and newspapers with pictures of food system components: trucks, farms, people, stores, etc.; glue, markers, large sheets of paper cut into pieces manageable for groups of three or four; food item (choose an item that you know most of your students will recognize, such as popcorn, breakfast cereal, or bread).

How to Do It

Begin by asking your students how food gets to their school cafeteria or dinner table and write their answers on the board.

Next, hold up a food item and ask the class to brainstorm all the steps it took to get this specific

food item to them. Record their answers and make some connections with arrows. Solicit details not mentioned (specific natural resources used, labor, animals, machines, gasoline, factories, pollution, paper, packaging, waste products).

Then, divide the students into small working groups, hand out materials, and ask each group to choose one product as a "starting point" to create its own food system collage.

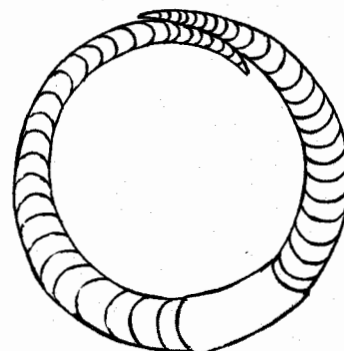
Give them a reasonable time limit. Walk around the room helping the groups make decisions, draw connecting arrows, and identifying additional steps in their food systems. Suggest labeling or drawing where needed.

Finally ask each group to present its collage to its classmates, explaining the steps, the needed ingredients, natural resources, etc., (called inputs), and the wastes produced (called outputs).

Classroom Conversations

- ♦ Ask the students for their reactions to the activity. Did they realize so much went into food's production? Who might they know who does any of the jobs they placed on their charts? What were the common inputs, outputs? Were any of the collages very simple or very complicated? Why?
- ♦ Discuss the collages from an ecological/relationships point of view. Bring up the concept of interdependence and what might happen to their system when one or more of its parts are changed or removed. (Examples: the price of gas just went up, the last farm in their area sold for housing, or the local grocery store closed.) Who decides on what happens along the food system continuum? What are the consequences of those decisions?

Everything is connected to everything else, and do you know what? There is no such thing as a free lunch!



¹ The three sectors in 1910 were Inputs 15%, Farming 41%, and Marketing 44%. In 1990 they were Inputs 24%, Farming 9%, and Marketing 67%.



- ♦ Write Barry Commoner's "Laws of Ecology" on the board (see Appendix): Everything is connected to everything else; Everything must go somewhere; Nature knows best; There is no such thing as a free lunch. Ask: How does eating something connect you to some of these laws? (Buying the food may/may not support the workers or farmers, the use of certain resources, the production of the pollution, etc.)
- ♦ Notice that the system literally starts in the soil and usually stops with people, the consumers. Is anything wrong with this picture? Who puts the nutrients back into the soils that grew the food we eat? How can this be done? Nature works in cycles.

Want to Do More?

- ♦ Look at ways to reduce the waste outputs (recycling, purchasing less packaging, buying locally).
- ♦ Research and discuss sustainable agriculture, "a kind of farming that encourages the farmer to earn a decent living growing good food on healthy land"¹—and, as often stated, is economi-

cally viable, environmentally sound, and socially acceptable.

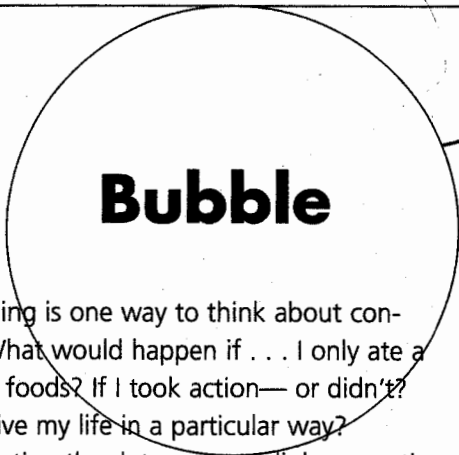
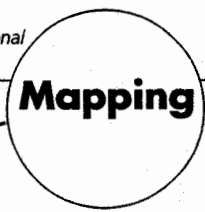
Action

Have students discuss how they and their school/class/families are contributing to a particular problem, and how they could change their behavior to have a more positive impact on our planet. Then, students choose an immediate problem such as litter in their neighborhood and brainstorm what changes they might make. (See Ten Steps to Action on page 214 in the Appendix for suggestions on tackling a task together.)

Lesson Links

- What Is Locally Grown?
- French Fries and Couch Potatoes
- Dollars and \$ense
- Farm to Table
- It All Adds Up
- Recycled Art

¹ "A Farming Revolution: Sustainable Agriculture" by Verlyn Klinkenborg. *National Geographic*, December 1995, page 68.



Bubble

Bubble-mapping is one way to think about consequences: What would happen if . . . I only ate a certain set of foods? If I took action— or didn't? If I chose to live my life in a particular way?

By connecting the dots, you can link one action with its implications or results, both positive and negative. This can be a helpful tool in brainstorming or planning goals, allowing you to envision some of the outcomes of your choices.

How to Do It

Begin with a blank sheet of paper. Think of a food-related topic (such as having a farmers' market, buying microwaveable lunches every day, or composting with worms). It can be a problem, an issue, or a question.

Next, write it in the center of the page, and draw a circle around it.

Then, think: What is related or connected to this? What leads to this or from it? What else does it have to do with? Write your answers in bubbles surrounding the original one, and connect them with lines. Add as many as you can which you think relate to the original topic. The circles may even connect to each other, not just to the center one, and a web of connections may become apparent.

Finally, Make more connections and then consider if any of your actions might have an impact that you could influence. Use the bubble map to reflect on better choices that you might make.

For younger students, doing just the bubbles as a brainstorming exercise (examining the connections between creatures in a worm bin, for example) will be fun.



Literature Links

How to Make an Apple Pie and See the World by Marjorie Priceman

Food Watch—Protecting Our Planet by Martyn Bramwell and Catronia Lennox

In the Supermarket (Machines at Work) by Henry Pluckrose

Market! by Ted Lewin

What is a Farmer's Market? by Deborah Patraker

Early Stores and Markets by Bobbie Kalman

The March of the Harvest by Irma Johnson

Supermarket by Kathleen Krull

Amelia's Road by Linda Jacobs Altman

La Mariposa by Francisco Jimenez

Resources

For background on the concept of the food system, further activities, and related resources:

- ◆ *The Food System: Building Youth Awareness through Involvement* by Alison Harmon, Rance Harmon, and Audrey Maretzki, Penn State College of Agricultural Sciences, 1999. Guidebook introduces the concept of the food system, emphasizes interactive learning, skill building, and using the community as a classroom. For parents and educators of youth in grades 4-12.
- ◆ Food Systems: The Capital Area Food Bank, Washington, DC, has written "From Farm to Table," an extremely readable report that explains the way our food system works and advocates for more sustainable farming practices. Visitors can also learn about the food bank, the Anacostia Farmers' Market, and Clagett Farm in Maryland; www.clagettfarm.org/fromfarmtotable.html
- ◆ Local Food Solutions is a well-designed site by the Wisconsin Foodshed Project that provides tools and resources for eaters and educators who want to change the way we grow, process, market, and eat food; www.foodshed.wisc.edu/

Benchmarks

Human Society: 7C—Global Interdependence, p. 176

Grades 3-5

"Many of the things people eat . . . come from other countries. . . . Decisions made in one country about what is produced there may have

an effect on other countries."

Grades 6 -8

"Trade between nations occurs when natural resources are unevenly distributed and the costs of production are very different in different countries. A nation has a trade opportunity whenever it can create more of a product or service at lower cost than another."

"The global environment is affected by national policies and practices relating to energy use, waste disposal, ecological management, manufacturing, and population."

The Designed World: 8A—Agriculture, p. 184

Grades 3-5

"Places too cold or dry to grow certain crops can obtain food from places with more suitable climates. Much of the food eaten by Americans comes from other parts of the country and other places in the world."

"Heating, salting, smoking, drying, cooling, and air-tight packaging are ways to slow down the spoiling of food by microscopic organisms. These methods make it possible for food to be stored for long intervals before being used."

Grades 6-8

"In agriculture, as in all technologies, there are always trade-offs to be made. Getting food from many different places makes people less dependent on weather in any one place, yet more dependent on transportation and communication among far-flung markets. Specializing in one crop may risk disaster if changes in weather or increases in pest populations wipe out that crop. Also, the soil may be exhausted of some nutrients, which can be replenished by rotating the right crops."

"Many people work to bring food . . . to U.S.

markets. With improved technology, only a small fraction of workers in the United States actually plant and harvest the products that people use. Most workers are engaged in processing, packaging, transporting, and selling what is produced."

The Designed World: 8C—Energy Sources and Use, p. 193

Grades 3-5

"People try to conserve energy in order to slow down the depletion of energy resources and/or to save money."