What is Organic?

Objective: Students will understand the meaning of "organic" and "non-organic" in reference to produce.

Summary: Students research what materials and labor are involved in organic and non-organic production of produce.

Time: Best with a field trip to the Farmer's Market, then 40 minutes (2 class meetings 20 minutes long), 1 hour for presentations.

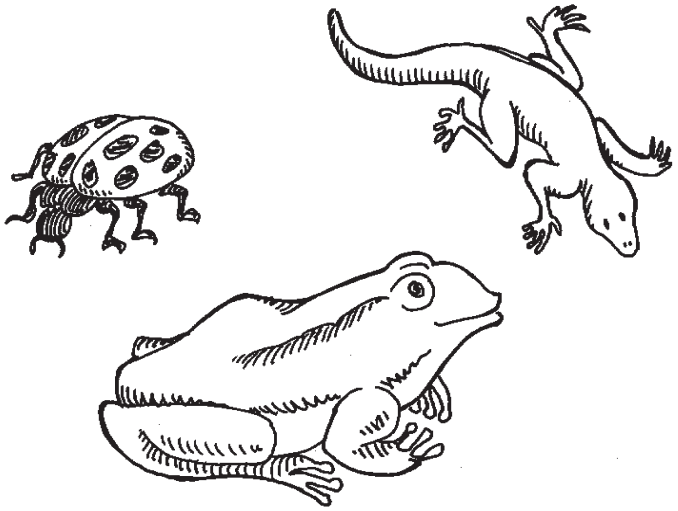
Student Grouping: Four to six students per group

Materials: Resource materials on organic and non-organic gardening techniques. Such materials are easy to find at the public library and used-book stores if not available at your school. Also see the Resources Directory for more ideas.

Background Information: All plants have various needs in order to produce a healthy crop. When growing plants for food there are two common problems: weeds and insect pests. How these problems are addressed is different for non-organic and organic farms. On non-organic farms, planes or spray trucks are often used to apply chemicals called "pesticides" that kill insects. These allow a farmer to treat a large area in a short time, thus arresting an impending infestation. Plant-killing compounds, known as "herbicides," can be carefully applied between rows of the desired crop, preventing weeds from using fertilizer, water and space. Fertilizers are soil amendments that supply a plant's nutritional needs. Non-organic fertilizers are carefully balanced in their content and applied in a chemical form which the plants can use readily, increasing productive growth.

Herbicides, pesticides and fertilizers are commonly used for the production of much of our food. These chemicals are typically petroleum-based and are expensive to use. There is much debate about the toxicity of some of these products and long-term effects of continued use. There are regulations which govern applying them, and they usually are effective. These types of non-organic farming products cut labor costs while sustaining more materials costs. Some non-organic farmers combine organic growing techniques with their chemical applications, but in general they rely more heavily on chemical pesticides and fertilizers.

On an organic farm a variety of materials and techniques are used to address similar needs. An organic fertilizer might be fish emulsion, animal manure, compost or a specific plant grown for its ability to provide nutrients when turned under before the desired crop is planted. Pest control can be a tedious task of picking bad bugs off by hand. Sometimes large vacuums are used



to suck bugs off; but, like pesticides, this removes the good insects as well as the bad. Sometimes plants that naturally repel insects are planted around a crop that is vulnerable to infestation. Predatory insects such as ladybugs, and other insects such as lacewings and wasps, may be brought in to consume unwanted pests. They are often attracted by habitat and other food provided for them in the area. Alternating crops in different rows sometimes limits or prevents the spread of pests which can otherwise wipe out a big tract of a susceptible plant. Covering the ground with materials to discourage weed growth can reduce weed problems. This is called "mulching." It also prevents moisture loss from the soil, decreasing water consumption. Sometimes organic growers plant their crops densely to shade out competing weeds. Turning weeds under and into the soil when they do grow kills them and lets them add nutrients to the soil at the same time. Often, organic farmers endure the arduous task of going through large beds picking out weeds by hand. Organic gardening maintains or im-

proves soil condition and fertility over time. Typically organic growing is more labor-intensive and done on a smaller scale; thus, the product is more expensive.

The Environmental Protection Agency and the Federal Food and Drug Administration agree that diet is the most significant long-term source of pesticide exposure for the general public. Authorities disagree on what constitutes a risky amount of residual pesticide on food and what warrants taking risks in the first place. Farmers today are pressed to produce more and more on smaller amounts of land, in less time and at lower costs. All these factors contribute to the organic verses non-organic farming debate. Currently, California has a strict definition of what the phrase "organically grown" means. Produce that meets these stringent standards is certified as "organic." In 2000 the USDA issued new national organic standards.

Marin Ag. Facts: Fruits and vegetables are Marin County's fifth greatest money-producing agricultural industries. Nursery products are sixth. These businesses contributed $7 and $707,000 respectively to the local economy in 1999. There are a growing number (29) of small truck farms in Marin County producing specialty vegetables for Bay Area restaurants and farmer's markets. High-quality organic produce such as that grown by Star Route Farms in Bolinas is the hallmark of some of these operations. Several ranchers are currently experimenting with growing wine grapes. There are also local nurseries that grow everything from roses and iris to heather and native plants.

Preparation:

1. Arrange to take class to the Farmer's Market or have plenty of resources for students to find information in.
2. Decide how you will group the students and what products they can choose from to research or which products you will assign to be researched. Each group will compare a single type of produce grown two ways; organically and non-organically. Likely choices include: organic and non-organic lettuce, organic and non-organic broccoli, organic and non-organic apples, organic and non-organic tomatoes, etc.
3. Make copies (one for each student) of the description provided of the assignment. If you prefer, students could submit a written report rather than give a presentation. (Change handout accordingly.)
4. Make sure there are books, pamphlets, videos and/or magazines available to do further research when students get back to the classroom. See the Resources Directory for ideas.

Procedure:

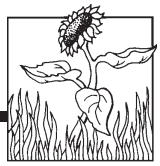
1. Explain the assignment to your students before the field trip. They will research the production of one of the items on the list (or an item you assign to them). They are to gather information from the farmers at the market and from books back at the classroom. Make it very clear you are interested in the material and labor inputs/costs required for this product.
2. Break the class into groups. Distribute handouts. Go on field trip.
3. As a class, schedule two half-hour meetings for them to work together in their groups to do research and organize their presentation.

Questions for Discussion:

- What are the major inputs for your product?
- Which is more expensive, labor or chemicals?
- What are some of the advantages and disadvantages of each type of farming?

Extensions:

- Take a field trip to two farms in one day, one that grows organically and one that does not.
- Invite a guest speaker from a garden club or farm to come talk about what they do for a living.



Researching Farming Inputs

- This is a group assignment. You will all receive the same grade on this project—it will be based on the work of the entire group. This means it is important to cooperate and help each other.
- You are to look for information on the materials and labor that are required to grow your farm product. This means you must find out what is necessary to make it grow, what kind of work and costs are involved.
- At the Farmer's Market ask growers what they feed their plants and how they control pests. Make notes on their answers. Notice the price of the produce.
- Use any of these you like: magazines, books, videos, telephone calls (with permission) and ask librarians, farmers and/or grocers to help find the information you need.
- Decide in your group who will do what before the next group meeting. At the first class meeting all members will tell what they have learned and ask for suggestions if they are having trouble.
- At the last class meeting you must decide how you will present the information to the class in 10 minutes. Be creative! You are encouraged to bring samples, use visual aids such as drama, graphs and pictures.
- Make notes here on what each group member will be doing.

- Note here when the class meetings will be and each group member's responsibilities.

Investigación sobre el Trabajo en la Granja

- Esta es una tarea para un grupo. Todos recibirán la misma calificación en este proyecto; estará basada en el trabajo del grupo entero. Esto significa que es importante cooperar y ayudarse unos a otros.
- Buscarán información sobre el material y las labores que son necesarias para cultivar su producto en la granja. Esto significa que tienen que averiguar qué es necesario para que crezca y qué tipo de trabajo y costos están involucrados.
- En el mercado de granjeros pregunten a los agricultores cómo ellos fertilizan sus plantas y cómo controlan las plagas. Escriban las respuestas. Anoten el precio del producto. Utilizen cualquiera de estos: revistas, libros, videos, llamadas telefónicas (con permiso) y pidan la ayuda de bibliotecarios, granjeros y/o vendederos de abarrotes para obtener la información necesaria.
- Para la próxima reunión del grupo decidan quién va a hacer cada cosa. En la primera reunión de la clase, cada miembro del grupo dirá lo que ha aprendido y pedirá sugerencias si ha tenido problemas.
- Tienen que decidir cómo van a presentar su información en 10 minutos en la última reunión de la clase. Están invitados a traer muestras, hacer presentaciones dramáticas, o a utilizar algo visual como una gráfica, una foto, un dibujo etc. Sean creativos!
- Escriban notas aquí acerca de la tarea de cada miembro del grupo.

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- Anoten aquí las horas de las reuniones y las responsabilidades de cada miembro del grupo.