SOCIAL STUDIES: Compare/Contrast, Research, Interpret Information / READING: Vocabulary, Compare/Contrast, Fact/Opinion, Propaganda, Research / WRITING: Persuasive Writing

Organic or Conventional

Fact, Opinion, Propaganda

Background

Organic foods are showing up all over grocery shelves, not just in the produce section but in breakfast cereals, boxes of macaroni and cheese, even prepared frozen foods.

What makes a product organic, and how is it different from those that are not labeled organic? Why are there more organic foods available now than in the past? Are organic foods better for you? Are pesticides safe?

What is organic?

According to the USDA National Organic Standards Board (NOSB), organic agriculture is defined as "an ecological production management system that promotes and enhances biodiversity, biological cycles, and soil biological activity. It is based on the minimal use of off-farm inputs and on management practices that restore, maintain or enhance ecological harmony. The primary goal of organic agriculture is to optimize the health and productivity of interdependent communities of soil life, plants, animals and people." (NOSB, 1997)

To be certified organic in the US, farmers must pay a fee to have their facilities and food annually inspected by certified organic inspectors. For at least three years in a row the land and crops must not be treated with any synthetic pesticides, insecticides, herbicides or certain fertilizers, such as sewage sludge and most chemical fertilizers. Meat labelled organic must come from livestock that are fed 100 percent organic food or feed and have access to pasture. Synthetic hormones and antibiotics are not allowed.

There are also regulations regarding the way the food is processed. No radiation or artificial preservatives can be used during organic food processing. Biotechnologies such as genetic engineering and cloning cannot be used in foods certified organic.

In Oklahoma, farms (or parts of farms) meeting all the requirements of the Oklahoma Organic Food Act may be issued a license by the Oklahoma State Board of Agriculture. There are two classes of certification—Organic Certification and Organic Certification-Transitional. The transitional certification is for farmland that has not yet been under three continuous years of organic management but otherwise meets the requirements of the Oklahoma Organic Food Act. In 2007 Oklahoma had 22,888 certified organic acres used for food production, with another 16,538 in transition to organic production.

P.A.S.S.

GRADE 6
Reading—1.1; 3.1b,2a,3a,4df; 5.1ab,2ac
Writing—1.2; 2.2abcd,3abc,7
Oral Language—1.2; 2.1,2
Visual Literacy—3
Social Studies—1.1,3; 4.2

GRADE 7
Reading—1.1; 3.1a,2a,3a,4d; 5.1ab,2ac
Writing—1.2; 2.21bc,3abc,8
Oral Language—1.1,2; 2.1,2
Visual Literacy—3.2
Social Studies—1.1; 5.2

GRADE 8
Reading—1.1; 3.1a,2ab,3ab,4a; 5.1a,2ab
Writing—1.2; 2.2abcd,3abc,8
Oral Language—1.1,2; 2.1,2,3
Visual Literacy—3.1,2
Social Studies—1.1,6; 2.1

Resources Needed

computer/library access

Vocabulary

antibiotics—chemicals used to kill bacteria; may also be used as a growth stimulant in livestock
artificial—made, produced, or performed by human beings
battery cages—small cages used to hold several hens for long periods of time
beneficial insects—insects that perform valued services like pollination and pest control
biodiversity—biological variety in an environment as indicated by numbers of different species of plants and animals
certified—endorsed authoritatively as having met certain standards.
chemical—a substance (as an element or compound) obtained from a chemical process or used to get a chemical result
clone—an individual grown from a single body cell of its parent and having the same genes as its parent
conservation—a careful preservation and protection of something; especially planned management of a natural resource to prevent exploitation, pollution, destruction, or neglect
consumer—a person who buys and uses up goods
contamination—to soil, stain, or infect by contact or association
conventional—following, agreeing with, or based on a way of doing things that is widely accepted and followed
E coli—a bacterium in the shape of a short rod that sometimes causes an intestinal illness
erosion—the state of wearing away by or as if by the action of water, wind, or glacial ice

Continued on next page.

Total organic acres of pasture land was 12,823.

How is organic different from other food?

The term "organic foods" refers to the methods used to produce the foods rather than to characteristics of the foods themselves. Only 0.7 percent of all US cropland and 0.5 percent of all US pasture were certified organic in 2008. Most of the food available to consumers in the US and around the world is produced by methods that are not completely organic. These methods are called "conventional" because they are the most widely accepted and most commonly-used methods for growing food. Although conventional methods make use of available technologies such as inorganic chemical pesticides and fertilizers and genetically-modified organisms, they also include methods aimed at protecting soil structures, conserving water and ensuring conservation and sustainability. No-till farming, which leaves stubble in the fields after a crop is harvested, is a conventional practice which helps prevent soil erosion. Integrated Pest Management is a conventional technique which takes into account several factors to minimize the use of insecticides in order to protect beneficial insects and preserve some biodiversity.

Most farmers, whether organic or conventional, are concerned about maintaining the health of the land because the land is their livelihood.

Why are there more organic foods available now than in the past?

Consumer demand has led to the increase in organic foods available. Sales of organic food in the US totaled $5.4 billion in 1998, $6.5 billion in 1999, $7.8 billion in 2000, $13.8 billion in 2005, and $24.8 billion in 2009. (Source: Organic Trade Association)

Is organic food better for you?

A recent British analysis of 50 years of research concluded that organic foods are no more nutritious than conventionally grown foods. However, research continues, with conflicting results. Some organically grown foods have higher levels of some nutrients while some do not. Most dieticians agree that the most important thing is to eat a balanced diet, no matter how the food is produced.

Are pesticides safe?

Some people who choose to eat organic food do so because of concerns about the use of pesticides in foods produced by conventional methods.

Three federal government agencies share responsibility for the regulation of pesticides in the foods we eat. The Environmental Protection Agency approves the use of pesticides and sets the maximum amounts of residues (tolerances) permitted in or on a food. The Food Safety and Inspection Service of the US Department of Agriculture (USDA) is responsible for inspecting meat, poultry, and certain egg products. The Food and Drug Administration (FDA) enforces tolerances in imported foods and in domestic foods shipped in interstate commerce. FDA also collects incidence/level data on particular commodity/pesticide combi-

nations. Since 1991, the USDA's Agricultural Marketing Service, through contracts with participating states, has carried out a residue testing program directed at raw agricultural products and various processed foods. All these agencies are charged with making sure the food we eat is safe.

Under organic certification regulations, chemical pesticides are allowed, but they must be from natural sources. Pesticides from natural sources typically break down more quickly into harmless materials than those from non-organic sources. In addition, they are less likely than non-organic pesticides to show up in food that is on grocery shelves. Some pesticides that are allowed in farms that are certified organic include Bt, pyrethrum and rotenone.

In some cases organically-grown foods may pose their own health risks. Recent concerns over E. coli bacteria in spinach and other produce have caused some to question the possibility of contamination by livestock manure used as fertilizer in organically-produced foods.

Background Sources: Oklahoma Department of Agriculture; "Organic review published," Food Standards Agency, http://www.food.gov.uk/news/newsarchive/2009/jul/organic; "Organic Agriculture," Iowa State University, http://extension.agron.iastate.edu/organicag/default.htm; 2007 Census of Agriculture - Oklahoma State Data, Table 48. Organic Agriculture: http://www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_1_State_Level/Oklahoma/index.asp

Activities

1. Read and discuss background and vocabulary.
   —Divide students into groups.
   —Assign one section of the background to each group.
   —Students will read and discuss their sections in groups.
   —Each group will teach its assigned section to the class, using visual aids and other presentation methods to summarize the main points.
2. Provide copies of the "Fact and Opinion?" worksheet included with this lesson.
   —Discuss the difference between fact and opinion. Make sure students understand that the distinction between fact and opinion is not the same as the disinction between true and false. (See worksheet.)
   —Students will determine which of the statements on the worksheet are presented as fact and which are opinion.
3. Provide copies of the "Propaganda Techniques" worksheet included with this lesson.
   —Discuss propaganda techniques.
   —For each of the statements on the worksheet, students will identify the propaganda technique(s) used.
   —As a class, students will discuss and justify their answers. Some students may have different answers than others.
   —Students will identify examples of propaganda from other sources: their peers, the news media, advertising, etc.
   —Students will write their own statements about organic and conventional food production methods, using a variety of propaganda techniques.

Vocabulary (Cont.)

facility—something (as a hospital) that is put up for a particular purpose
feedlots—large pens of livestock kept confined and usually fed grain until large enough to harvest
fertilizer—a substance (as manure or a chemical) used to make soil produce larger or more plant life
genetic engineering—introducing DNA from other species in order to get new characteristics such as vitamin production, disease resistance, etc.
herbicides—chemicals that kill plants
hormones—chemicals made in one part of the body that act on another part of the body;
part of the body's chemical message system; used to make livestock grow faster or produce more milk
implants—usually small plastic pieces with embedded hormones that are inserted under an animal's skin for slow-release of the chemicals
inorganic—being or composed of matter that does not come from plants or animals either alive or dead
insecticides—chemicals that kill insects
Integrated Pest Management—ecological approach to pest management, incorporating all available techniques in a plan to manage the pest in such a manner that economic damage is reduced and adverse side effects are minimized

Vocabulary (Cont.)

livestock—farm animals kept for use and profit
natural—existing in or produced by nature
no-till—a way of growing crops from year to year without disturbing the soil through tillage
nutrient—a substance or ingredient that furnishes nourishment
pesticides—chemicals that kill "pests," e.g., weeds, insects, etc.
preservative—something that preserves or has the power of preserving
radiation—gamma rays, high energy electrons, and other particles used to kill bacteria in order to lessen the chances of food poisoning, sprouting of vegetables, etc.
residue—whatever remains after a part is taken, set apart, or lost or after the completion of a process
sewage sludge—sewage solids (manure, etc.) used as fertilizer
stubble—the stem ends of plants and especially cereal grasses remaining attached to the ground after harvest
sustainable—use for the practice of agriculture which supports sustained economic profitability, sustained quality and well-being of the environment, efficient use of natural resources, and the overall quality and availability of food and fiber
synthetic—produced artificially
yield—something produced as a result of effort, as a crop from a field

4. Students will use online search engines and library resources to research the impact of organic vs. conventional agriculture on the natural environment:
   —Students will select one of the following topics: synthetic vs. natural pesticides and herbicides; synthetic fertilizers vs. natural fertilizers such as manure and compost; bio-diversity vs. monoculture
   —Provide students with copies of "How Reliable Are Your Sources?" included with this lesson, for review and discussion.
   —Students will use the chart provided to evaluate the validity of sources.
   —Students will use a variety of media to present their findings and discuss them as a class.
5. Students will write persuasive essays on the benefits of organic farming or conventional farming.
6. Students will research and write reports about one of the following pioneers in the organic agriculture movement: Sir Albert Howard, R.I. Rodale, Lady Eve Balfour, Rudolf Steiner.

Extra Reading

Artley, Bob, *Once Upon a Farm*, Pelican, 2000.
Friedman, Lauri S., *Organic Food and Farming* (Introducing Issues With Opposing Viewpoints, Greenhaven, 2009.
Hesser, Leon, *The Man Who Fed the World: Nobel Prize Laureate Norman Borlaug and His Battle to End World Hunger*, Durban House, 2006.
Lindbo, David, *SOIL! Get the Inside Scoop*, American Society of Agronomy, 2008.
Rosen, Michael, *Our Farm: Four Seasons With Five Kids on One Family's Farm*, Darby Creek, 2008.

Name _____

Fact or Opinion?

Facts are statements that can be verified or proven to be true or false. Opinions are statements that express feelings, attitudes, or beliefs and **are neither true nor false**. Opinions must be considered as one person's point of view that you are free to accept or reject.

For each of the statements below, decide which is fact and which is opinion.

1. Organic agriculture is defined by the USDA National Organic Standards Board (NOSB) as "an ecological production management system that promotes and enhances biodiversity, biological cycles, and soil biological activity.
   Fact or opinion?

2. Eating organic is not worth the extra money you have to pay.
   Fact or opinion?

3. Organically-grown apples taste better than those grown using conventional methods.
   Fact or opinion?

4. In Pakistan wheat yields rose from 4-6 million tons in 1965 to 8.4 million in 1970 after the introduction of dwarf wheat varieties developed by Norman Borlaug, father of the Green Revolution.
   Fact or opinion?

5. We have to use new technology if we are to meet the growing food needs for the next 25 years.
   Fact or opinion?

6. Many conventional family farms practice integrated pest management, selectively employ advanced fertilizers to reduce runoff, spray very selectively and establish grazing systems for livestock that rely on environmentally sound rotations schedules.
   Fact or opinion?

7. According to data collected by the Organic Trade Organization, sales of organic food in the US totaled $5.4 billion in 1998, $6.5 billion in 1999, $7.8 billion in 2000, $13.8 billion in 2005, and $24.8 billion in 2009.
   Fact or opinion?

8. Researchers from the University of Michigan found that in developed countries, crop yields were almost equal on organic and conventional farms.
   Fact or opinion?

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Fact or Opinion? (answers)

Facts are statements that can be verified or proven to be true or false. Opinions are statements that express feelings, attitudes, or beliefs and are neither true nor false. Opinions must be considered as one person's point of view that you are free to accept or reject.

For each of the statements below, decide which is fact and which is opinion.

1. Organic agriculture is defined by the USDA National Organic Standards Board (NOSB) as "an ecological production management system that promotes and enhances biodiversity, biological cycles, and soil biological activity.
   Fact. This can be verified by looking at the USDA standards

2. Eating organic is not worth the extra money you have to pay.
   Opinion. This is a matter of priorities.

3. Organically-grown apples taste better than those grown using conventional methods.
   Opinion. This is a matter of taste that can vary from person to person.

4. In Pakistan wheat yields rose from 4-6 million tons in 1965 to 8.4 million in 1970 after the introduction of dwarf wheat varieties developed by Norman Borlaug, father of the Green Revolution.
   Fact. This can be verified as true or false by looking at the research.

5. The most important thing is eating enough fruits and vegetables, no matter how they are grown.
   Opinion. This may be the most important thing for one person but for someone else flavor or convenience might be more important.

6. We have to use new technology if we are to meet the growing food needs for the next 25 years.
   Opinion. This would be very difficult to prove and vast quantities of research have not yet settled the issue.

7. Many conventional family farms practice integrated pest management, selectively employ advanced fertilizers to reduce runoff, spray very selectively and establish grazing systems for livestock that rely on environmentally sound rotations schedules.
   Fact. This can be verified by surveying some conventional family farmers

8. According to data collected by the Organic Trade Organization, sales of organic food in the US totaled $5.4 billion in 1998, $6.5 billion in 1999, $7.8 billion in 2000, $13.8 billion in 2005, and $24.8 billion in 2009.
   Fact. Easily verified by checking data from the Organic Trade Organization

9. Researchers from the University of Michigan found that in developed countries, crop yields were almost equal on organic and conventional farms.
   Fact. Can be verified by checking the research from the University of Michigan.

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Propaganda Techniques

Propaganda is used to spread ideas that further a cause—political, commercial, religious, etc. Propaganda techniques manipulate a person's reason and emotions by persuading him/her to believe in something or someone, buy an item, or vote a certain way. The following are some common propaganda techniques:

BANDWAGON

Bandwagon is an appeal to the subject to follow the crowd, to join in because others are doing so as well.
Examples: "Everyone knows pesticides are perfectly safe." "All the kids these days are eating organic snacks."

GLITTERING GENERALITIES

This technique uses important-sounding "glad words" that have little or no real meaning. These words are used in general statements that cannot be proved or disproved. Words like "good," "honest," "fair," and "best" are examples of "glad" words. Natural is another glad word often used in advertising for food. It is meaningless because in reality all food is natural.
Examples: "Organic food is all natural." "We have the best food system in the world."

TRANSFER

In this technique, an attempt is made to transfer the prestige of a positive symbol to a person or an idea. For example, using the American flag as a backdrop for a political event makes the implication that the event is in the best interest of the US.
Examples: "Using all available technology in farming is the American way." "If organic farming was good enough for Thomas Jefferson, it's good enough for me."

TESTIMONIAL

This technique is when "big name" personalities are used to endorse a product. Whenever you see someone famous endorsing a product, ask yourself how much that person knows about the product, and what he or she stands to gain by promoting it.
Example: "Carrie Underwood says a vegetarian diet is the healthiest diet." "Sam Elliott says beef is what's for dinner."

EITHER/OR FALLACY

This technique is also called "black-and-white thinking" because only two choices are given. You are either for something or against it; there is no middle ground or shades of gray. It is used to polarize issues, and negates all attempts to find a common ground. It is particularly relevant to the organic vs. conventional discussion because there are advantages and disadvantages to each, and most farmers actually use a little bit of both.
Example: "Either we use all available technology or we will be unable to feed a growing population. Either we start producing all our food organically or our planet will be destroyed.

NAME CALLING (AD HOMINEM)

This technique consists of attaching a negative label to a person or a thing rather than supporting a statement with facts.
Example: "Farmers who use pesticides are agents of death." "Organic farmers are just unrealistic hippies."

PLAIN FOLKS

This technique uses a folksy approach to convince us to support someone or something. These ads depict people with ordinary looks doing ordinary activities.
Example: "Conventional farmers are your neighbors and friends." "We farm organically, the old time way, just like our grandparents taught us."

FAULTY CAUSE AND EFFECT

This technique suggests that because B follows A, A must cause B. Remember, just because two events or two sets of data are related does not necessarily mean that one caused the other to happen. It is important to evaluate data carefully before jumping to a wrong conclusion.
Example: "My neighbor eats organic food and she is very fit, so organic food must be good for you." "Obesity is on the rise because conventional agriculture helps us grow too much food."

APPEAL TO FEAR

The idea is to present a dreaded circumstance and usually follow it up with the kind of behavior needed to avoid it.
Example: "Our environment will be destroyed if we don't stop using pesticides." "We will all starve if we stop using pesticides."

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Propaganda Techniques

For each of the statements below, write the name or names of the propaganda techniques used.

1. Food grown on factory farms is bad for the environment.

2. We are poisoning the earth and need to stop using pesticides.

3. People in developing countries use organic agriculture and they are starving, so organic agriculture cannot feed the world.

4. Everyone is switching to organic food because organic food is better for you and better for the environment.

5. The singer Carrie Underwood says you should only eat organic food.

6. People who eat organic food are just weird treehuggers.

7. People who eat organic food are unAmerican because they don't appreciate American farmers.

8. Taste the down home natural goodness of organic food.

9. We either provide food choices or we farm organically. We can't have both.

10. Organic food is grown on small family farms.

11. People have been using pesticides for years and they haven't killed us yet, so they must be safe.

12. Organic vegetables are so much better for you.

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Propaganda Techniques (answers)

For each of the statements below, write the name or names of the propaganda techniques used. Discuss your answers with your classmates.

1. Food grown on factory farms is bad for the environment.
   name calling—The word "factory" has negative connotations.

2. We are poisoning the earth and need to stop using pesticides.
   appeal to fear, either or fallacy—Use of the word poison provokes fear. In addition, the statement that we need to stop using pesticides is overly simplistic, since some pesticides are from natural sources and are allowed in organic agriculture and many farmers use Integrated Pest Management techniques which limit but do not eliminate the use of pesticides.

3. People in developing countries are organic farmers, and they are starving, so organic agriculture cannot feed the world.
   faulty cause and effect—War, politics, trade disparities, unequal distribution of resources and many other factors contribute to hunger in the developing world. There are hungry people in our country, too.

4. Everyone is switching to organic food because organic food is better for you and better for the environment.
   bandwagon, glittering generalities

5. The singer Carrie Underwood says you should only eat organic food.
   testimonial

6. People who eat organic food are just weird treehuggers.
   name calling

7. People who eat organic food are unAmerican because they don't appreciate American farmers.
   name calling, transfer, faulty cause and effect

8. Taste the down home natural goodness of organic food.
   plain folks, glittering generalities

9. We either provide food choices or we farm organically. We can't have both.
   either/or fallacy

10. Organic food is grown on small family farms.
    plain folks, transfer—The phrase "small, family farm" makes the reader identify the food with people they might know and with an ideal way of life. In reality, most of the organic food found in stores is produced on large farms.

11. People have been using pesticides for years and they haven't killed us yet, so they must be safe.
    faulty cause and effect

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How Reliable Are Your Sources?

When conducting research, make sure you use reliable information from legitimate sources. Reliable information is well-researched from sources that are well-respected and as objective, or neutral, as possible. The best way to find legitimate sources is to go to the library and use scholarly journals, reference books and other well-researched sources.

Another place to find information is the Internet. Conducting research on the Internet is convenient, but it can also be tricky. There are many thousands of Web pages that have little actual content and are mainly links to other pages, which may be links to other pages, and so on. Anyone can post anything to the Internet. To make sure you have found a reliable source of information, ask yourself these questions:

1. Who is responsible for the Web site? Is the Web page associated with a reliable organization, such as a university or a government agency? What interest does the organization responsible have in the information presented. For example, will the organization profit from the information presented?

2. Who wrote the information? If the author is not listed or has no credentials, it may not be a credible source. Pay attention to the author's credentials or experience. Is the source really an authority on this particular matter or someone with an impressive title that has no connection to the subject matter?

3. When was the information written? Is it current? Is it still relevant?

4. Are there other sources that agree with statements made on the site, or do other sources contradict this source? In that case you may need to search further. It's always a good idea to gather more than one source.

5. Are any sources cited? If the author does not document anything, then the information may simply be someone's opinion. If statistics used come from a survey, how was the data gathered? Who conducted the survey or poll? Was the sample representative of the population? How many were surveyed? What percent of the population?

When choosing between the library and the Internet keep in mind that up to 90 percent of the contents of college library collections are not on the Internet. Because of copyright laws it is too expensive to put all scholarly work on the Internet. This means that the most comprehensive source of information is still the library.

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