

FOOD SAFETY – CONSUMERS NEED THE FACTS

LEVEL: 9-12

SUBJECTS:

Science, Social Studies,
Language Arts,
Consumer Education

VOCABULARY:

Pathogens, pesticide,
antibiotics, toxicants,
hormones, additives,
relative risk

LEARNING GOAL:

Students shall develop their abilities to apply core concepts and principles from science, mathematics, social studies, arts and humanities, practical living studies and vocational studies to what they will encounter in life.

MATERIALS

Student worksheets, food safety publications-Kentucky Cooperative Extension Service.

BACKGROUND

Attention to the food supply has shifted throughout history from concerns about adequacy of the supply to that of food safety. Food safety is an historical issue in that man has always known that there are risks in eating. By unfortunate coincidence, early in history people learned that certain plants and animals were poisonous or a potential source of illness if prepared improperly. However, as late as the settlement of North America, food safety was secondary to the food supply. Today, the reverse is true. Improved production and processing, efficient transportation systems and global communications have allowed the public to focus on the food safety risks in our food chains. These risks include microbiological pathogens (a bacterium or virus which causes disease), pesticides, antibiotics, naturally occurring toxicants (poisons), hormones, food additives and irradiation.

As each food safety issue arises, and these issues are sporadic in their appearance – it plays out in the media with two consequences. One, public confidence in the integrity of the food supply plunges; two, the agriculture community is left to do a lot of damage control. In many instances, the public may never learn what actions were taken to

OBJECTIVE

The student will:

-complete a survey to assess their perceptions of the safety of our food supply.

-define relative risk as it applies to food safety.

-research food safety issues utilizing both government and business information sources.

-debate food safety issues.

-choose a personal diet which reflects understanding of risk/benefits of consuming different foods.

CONCEPTUAL AREA

Images and attitudes – people's images, attitudes and behaviors create the issues and trends affecting agriculture and the environment.

Decisions – responsible human decisions are necessary to maintain food and natural resources.

address a food safety concern and, consequently, there remains a lingering distrust of the food supply.

Perceptions of risk in the food supply are quite different when ranked by consumers and experts:

EXPERTS	CONSUMERS
1. microbiological hazards	5
2. nutritional imbalances	2
3. environmental contaminants	6
4. natural toxicants	3
5. pesticide residues	1
6. food additives	4

Contact your county Cooperative Extension Services office for a wealth of information on food safety and nutrition.

PROCEDURE

1. To begin teaching this lesson, have students complete the "What Do You Think?" survey. After they have made their ranking, display the results of ranking of consumers and experts described in the background information for comparison. Ask students what factors influence their ranking of the different food safety areas? How influenced were they by media coverage, product advertising or opinions expressed by others?
2. Help students develop a definition for relative risk (Fruits, vegetables and grains are good sources of dietary fiber, vitamins and minerals. Scientific evidence confirms that these foods protect against cancer and other chronic diseases. These potential benefits to good health greatly outweigh the small risks from eating pesticide residues in these foods.) Have individual students complete the "Pro or Con" worksheet. Discuss responses as a class.
3. Divide students into research groups to make an additional study of these food safety pros and cons. Students could get information from or interview farmers, county agriculture agents, 4-H agents, farm chemical dealers, county health department staff, and representatives of the Kentucky Cabinet for Natural Resources and Environmental Protection, Division of Fish and Wildlife Resources, or the Department of Agriculture.
4. After students have concluded their research, have them hold a food safety debate with the teams being selected from the different research groups.

RESOURCES

"Understanding Pesticides in Food," American Dietetic Association, "Understanding Perceptions of Food Safety Risks," Donald W. Schaffner, Ph.D., Nutrition News, 1990; "Food Safety: This Issue in the Future," Dr. Philip Tybor, Extension Food Science & Technology, University of Georgia.

EVALUATION

Students demonstrate understanding of relative risk as it applies to food safety by researching the potential issues and presenting their findings as part of a class debate. Students make personal nutrition choices based on their understanding of food safety issues. Further assessment of students' knowledge of different factors to examine in making decisions about food safety could include a discussion of a recent food safety problem such as the Alar apple incident involving CBS's "60 Minutes" a few years ago.



PRO or CON

Modern agriculture relies on chemicals to produce more food for more people. Fertilizers, herbicides, fungicides, and pesticides are all different types of farm chemicals.

Fertilizers put necessary nutrients into the soil.
Herbicides kill unwanted weeds.
Fungicides kill plant diseases.
Pesticides kill unwanted pests.
Insecticides kill insects which eat good plants.

Because some of these chemicals can be dangerous if used improperly, some people do not think they should be used.

Below are some reasons Pro and Con for using farm chemicals. Beside each statement write Pro if it supports farm chemical use. Write Con if the statement does not support farm chemical use.

- _____ Decreases insect populations.
- _____ Keep plants free of disease.
- _____ Spray drift could harm plant life.
- _____ Increases crop production.
- _____ Could lower crop production costs.
- _____ Could harm fish in streams if not applied properly.
- _____ Could kill bees working in fields being treated.
- _____ Keeps animals healthy.
- _____ Helps correct soil nutrient deficiencies.
- _____ Protects plants from weed competition.
- _____ Could hurt organisms not meant to be harmed.

Select debate teams to research and then debate pros and cons from the list and from other similar issues students bring forth themselves.

What Do You Think?

Listed below are some possible health/safety risks from the food supply. How would you rank the following, with #1 being the greatest risk?

Natural Toxins

(chemicals found naturally in food which are potentially toxic)

Nutritional Imbalances

(over/under consumption of food)

Environmental Contaminants

(example--lead)

Pesticide Residues

(traces of chemicals left on food from applications of pest controls during crop production)

Microbiological Hazards

(bacteria which can be present in food products and cause food-borne illnesses)

Food Additives

(any chemical added to food to improve appearance, extend shelf life, or preserve)
