

# LEVEL 2

4-H  
LEADER GUIDE



## THE FOOD-NUTRITION LINK

Dear Leader:

Welcome to the Level II 4-H Food and Nutrition project. "The Food–Nutrition Link" includes 18 lessons. The first 18 lessons are designed for 4-H'ers ages 12 to 14 and are sequenced for teaching six lessons in each of 3 years.

Note that not all of the lessons are related to a specific food such as meats or vegetables. Some lessons are on general food buying and food preservation. These are important topics for entire lessons because getting the most for the food dollar, keeping food safe and preserving food are important in today's world.

Not all of the lessons involve food preparation by the 4-H members. Food preparation is important, but preparation in itself should not be the main focus of a food and nutrition project. The activities in the lessons that do not include food preparation offer excitement and challenge.

Activities of special interest in healthy lifestyle choices and weight management can be obtained from the "Lighten Up" curriculum available from your county Extension agent.

We recommend that you use these guidelines in your group leadership role.

1. Read each lesson carefully at least 1 week prior to the meeting. 4-H'ers will sometimes have an assignment for the next meeting.
2. Obtain any Extension publication listed under Equipment/Materials from the county Extension agent. Review that material to broaden your knowledge of the lesson's subject matter.
3. Cover the subject matter printed in each lesson before beginning the activities.
4. Become familiar with the "Sensory Evaluation Form" at the end of lesson 18. You will be using it many times with your 4-H'ers in evaluating the quality of foods. Have copies made of this handout prior to the meeting or simply have the 4-H'ers write down the five characteristics and sample letters/numbers on a blank piece of paper.
5. Involve 4-H members in as many aspects of each meeting as possible.
6. Involve teen leaders in conducting project group meetings.

You have our very best wishes for a successful 4-H project!

Sincerely,

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# LEVEL II - 4-H FOODS AND NUTRITION LEADER GUIDE

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# Lesson 1. Food Expenditures for Families

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## Objectives

4-H'ers will become familiar with the factors affecting the amount of money families spend on food and determine the factors that influence their own family food expenditures.

## Before the Meeting

- Ask the agent to make copies of the handout, Food Expenditures in 1986 and 1990

## Equipment/Materials

- Newsprint or poster board
- Felt marker
- Handout *Food Expenditures in 1986 and 1990* (Tables 1 and 2)

## Time

40 minutes

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Subject Matter	Suggested Activities
<p><b>How the Food Dollar is Spent</b></p> <p>Americans spend about 15 percent of their income for food. Fifty-eight percent of this is for foods consumed at home, and 42 percent is for foods eaten away from home. We are spending more of our food dollar each year on meals eaten away from home and more of these foods are being purchased at fast food restaurants.</p> <p>Lower income households spend less than wealthier households on most food items (Table 1). In 1990, the lowest income households spent \$894 per person on food at home and \$440 on food away from home, while the wealthiest households spent \$1,097 per person on food at home and \$1,131 on food away from home.</p> <p>Families with low incomes may spend more than half of their income on food. Almost 27 percent of the food dollar is spent for meat, poultry and fish; 16 percent for fruits and vegetables; about 12 percent for dairy products; about 15 percent for cereals and bakery products and 30 percent for other foods at home. Often the food bill appears larger than it really is because paper, cleaning products and other</p>	<p>Discuss the subject matter, and have each member explain how each of the factors relates to his or her family.</p> <p>For example, some families may have members who are on special diets.</p> <p>Share a copy of your family's grocery list or itemized receipt for 1 week's groceries. Analyze costs by food groups and non-food items, or display as week's worth of groceries for a family. Discuss costs by food groups.</p> <p>Have the members review Tables 1 and 2 in Handout "Food Expenditures in 1986 and 1990."</p> <p>In Table 1 have members compare the dollars spent per person and by income level for the amount of total food expenditures, food eaten at home and food eaten away from home between the two years. Let the group brainstorm on the reasons why they think so much</p>

## Subject Matter

nonfood items are purchased at the supermarket.

The amount a family spends for food is a personal decision and is dependent on many things. Families should spend enough money to ensure that they have well-balanced meals. Well-balanced meals should be planned according to the USDA Food Guide Pyramid. The amount spent on food may vary depending on the following factors:

### ■ Special food needs of family members:

- Teenagers need more food than toddlers.
- Family members on special diets (diabetic, low-fat, low calorie, sodium-restricted) will have special food needs.
- Families who want to eat more healthfully by increasing complex carbohydrates; reducing fat, saturated fatty acids and cholesterol; eating more fruits and vegetables; eating less salt and sugars; and reducing alcohol consumption will buy food accordingly.

### ■ How careful you plan and buy:

- Careful meal planning and shopping with a list can reduce food costs by reducing food waste, reducing impulse buying and making wise use of leftovers.

### ■ Price levels in stores:

- Areas with large populations and a wide selection of food stores will usually have lower food prices. Some areas of the state have higher food prices than others.

### ■ How much food you prepare yourself:

- Many convenience foods cost more than foods prepared from less processed foods in the home; however, food preparation requires time and equipment.

### ■ Whether you raise some of your own food or not:

- Home gardens can reduce food bills if cared for properly and extra produce is preserved for later use.

## Suggested Activities

food is eaten away from home. Also have them make comparisons of the food purchases by food categories between the two years. In Table 2 have them analyze the same information but make the comparisons by dollars per household, number of people in the household and by ethnic groups. Then ask them how they would adjust spending for food at home if the families eat out frequently.

Have 4-H'ers plan menus for each lifestyle:

- teen versus toddler
- family members on various special diets
- family of four in which an elderly relative lives with them.

- **The importance you place on food in relation to other family needs:**
  - Some families may place high emphasis on a variety of foods and food preparation. Other families may wish to put less emphasis on food and spend the money they save on other family needs such as recreation, clothing or housing.
- **Family lifestyle:**
  - Busy families may find the cost of convenience foods a reasonable way to save time and energy in food preparation. For other families food preparation may be a part of their time spent together.
- **Household size:**
  - As household size increased, per capita food spending declined. Larger households had a much larger total food bill because larger households buy more food in bulk, have more children (who eat smaller portions), and eat fewer meals away from home.
- **Urban versus rural household spending:**
  - Urban households spend more per capita on food than rural households, an average of \$1,728 versus \$1,536. This may be attributed to higher incomes, greater spending on food away from home, and lower levels of home food production.
- **Family income:**
  - Families with lower incomes may spend half of their income for food. Higher income families are able to spend a smaller percentage.
  - Higher income families presently spend more on food away from home, and more on fish, cheese, dairy products such as ice cream, fresh fruit and processed fruit than do those on lower incomes. Americans who are 65 and older spend more on food than any other age group.

## Subject Matter

## Suggested Activities

- With more homemakers working outside the home, more meals are eaten away from home. Today, 42 percent of our food dollar are spent on meals eaten outside the home. Most of these are eaten in conventional restaurants, but more and more are being eaten in fast food outlets.
- **Cost consciousness when eating out:**
  - Some people order more than they can eat or pay higher prices for the atmosphere of a restaurant.
  - When eating out, select nutritious meals based on the food groupings in the USDA Food Guide Pyramid. For example, to balance a hamburger lunch (which provides the breads and cereal group, meat group and vegetable groups), select mustard instead of mayonnaise, skip the whole fat cheese and replace it with cheese made from skim milk, low fat yogurt or low fat milk. To balance a meal of fried chicken, a roll and coleslaw, add a serving of low fat milk.

Show members sample menus from local restaurants – family-style dining, fast food and cafeteria. Have members make suggestions for selecting foods healthfully.



### Criteria For Measuring Progress

4-H'ers can:

- Name the factors which affect a family's food expenditures.
- Identify the factors which influence their own family food expenditures.

### Recognition

- Smile.
- Praise 4-H'ers individually for identifying factors which influence their family's food expenditures.
- Recognize the group for their cooperation and participation.

## Food Expenditures in 1986 and 1990

<b>Table 1. Food spending by income group, 1986 and 1990</b>								
<b>Item</b>	<b>1986</b>				<b>1990</b>			
	<b>All</b>	<b>Poorest 20%</b>	<b>Middle 20%</b>	<b>Richest 20%</b>	<b>All</b>	<b>Poorest 20%</b>	<b>Middle 20%</b>	<b>Richest 20%</b>
	<b>Dollars per Person</b>							
Food expenditures	1,326	993	1,251	1,829	1,652	1,334	1,484	2,227
Food at home	767	654	753	928	956	894	895	1,097
Other food at home	213	168	215	266	287	246	264	345
Cereals/bakery products	106	96	104	129	142	129	130	168
Meat, poultry, fish, eggs	216	194	212	248	257	261	245	276
Dairy Products	97	79	95	115	113	107	112	125
Fruit and Vegetables	123	110	118	150	157	151	145	183
Food away from home	560	338	498	902	697	440	590	1,131
Alcoholic beverages	104	72	104	153	113	71	108	173
<b>Source:</b> Blaylock, J.R. and Smallwood, D.M., 1992, "Per capita food spending up 25 percent in 4 years," <i>Food Review</i> 15(2): 7-11.								

<b>Table 2. Food spending by race, 1986 and 1990</b>				
	<b>1986</b>		<b>1990</b>	
	<b>White</b>	<b>Black</b>	<b>White</b>	<b>Black</b>
<b>Dollars per household</b>				
Income before taxes	26,505	16,694	33,070	22,461
Income after taxes	24,094	15,678	29,981	20,599
<b>Number</b>				
Average number of people in household	2.5	2.8	2.5	2.7
<b>Dollars per person</b>				
Food expenditures	1,425	893	1,775	1,159
Food at home	810	615	1,011	788
Other food at home	230	140	308	203
Cereal/bakery products	112	83	151	107
Meats, poultry, fish, eggs	220	234	264	270
Dairy products	105	57	123	73
Fruit and vegetables	130	98	165	135
Food away from home	615	278	764	371
Alcoholic beverages	115	46	124	60
<b>Source:</b> Blaylock, J.R. and Smallwood, D.M., 1992, "Per capita food spending up 25 percent in 4 years," <i>Food Review</i> 15(2): 7-11.				



# Lesson 2. Lean Meat and Fish

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## Objectives

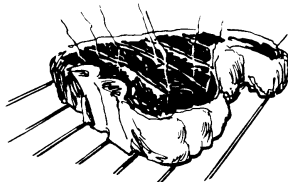
4-H members will learn to select, buy, prepare and store protein foods.

## Before the Meeting

- Ask agent to order or make copies of L-1321 *Eat Well for Less from the Meat Group*
- Purchase food items listed
- Collect meat ads the week before the meeting
- Visit the local grocery store and visit with the meat department supervisor to set up a tour

## Equipment/Materials

- Paper
- Paper plates
- Napkins
- Sirloin or rib steak - 4 ounces
- Broiler pan
- L-1321 *Eat Well for Less from the Meat Group* (available from your county Extension agent)
- Pencils
- Forks
- Ground beef - 4 ounces
- Oven broiler
- Bottom round steak - 4 ounces
- Meat ads from local Wednesday or Sunday paper



## Time

35 minutes

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## Subject Matter

## Suggested Activities

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### Meats and Meat Alternates

In planning meals, the first thing most people think of is the meat or main dish. Twenty-seven percent of the food dollar goes for these foods, so it is important to select them with care to get the most for your money.

### To Cut Costs

Cost per serving is the best guide in determining the economy of meat, fish or poultry. It is the amount of cooked, lean meat, or the number of servings, for the price that matters. A relatively high-priced meat with little or no waste may be more economical than a low-priced meat with a great deal of bone, gristle or fat. These guidelines are useful in comparing cost per serving while shopping.

Have the group broil:

- 4 ounces of ground beef
- 4 ounces of bottom round steak
- 4 ounces of sirloin or rib steak

Conduct a sensory evaluation of each type of meat using the Sensory Evaluation form on page 77.

### Discussion Questions

1. Which cut was:
  - most tender and why?
  - least tender and why?

## Subject Matter

## Suggested Activities

Cuts with little or no bone or fat provide three to four servings per pound. Examples are:

outside skirt steak (fajita)	
flank steak	boneless roast
ground meat	liver
round steak	center cut ham
stew meat	veal cutlets

Cuts with a medium amount of bone, gristle or fat provide two to three servings per pound. Examples are:

most roasts  
some chops and steaks  
ham

Cuts with much bone, gristle or fat provide one to two servings per pound. Examples are:

rib chops of lamb, pork or veal  
plate and breast of lamb or veal  
porterhouse, T-bone and club steak  
spareribs  
shank  
short ribs

The cost per serving is easy to determine. Simply divide the cost per pound by the number of servings. Example:

Ground beef at \$1.96 per pound

4 servings per pound = 49 cents per serving

Beef ribs at \$1.39 per pound

2 servings per pound = 70 cents per serving

Beef ribs have only two servings per pound compared to the four servings per pound from ground beef. Although ground beef is higher in cost per pound, it is actually less expensive in cost per serving than the beef ribs.

Buying whole chickens or turkey generally provides more meat for the money than buying pieces. Fish is generally of low or moderate cost throughout the year.

Meat prices may vary from season to season, so it is important to watch for advertised specials when determining best buys. Eggs, for

2. Would the round steak have been more tender if it had been cooked another way, such as roasting with liquid? Why?

3. Why was the ground beef tender?

Figure the cost per serving of the ground beef, round steak and sirloin steak.

Conduct a grocery store tour of the meat department. Ask the meat department store personnel to discuss the different meats available, the cost per serving, and the new nutrition labeling on meat and meat products. How has this helped the consumer to make wiser selections at the meat counter?

Have 4-H members name less tender cuts. Ask them to discuss fajitas, a popular Southwestern meat choice.

Ask members to explore the history of fajitas in Texas. Interview your county Extension agent about the history and the nutritive value of the fajita. Ask a restaurant to demonstrate how to prepare the fajita and give members a chance to taste one.

Have 4-H members compare meat specials offered in local newspapers.

instance, are generally an especially good buy in the spring.

Lean meat is an important part of grocery store advertising. Taking advantage of specials can be a great money saver. Lean meats that have been marked down because they have been in the refrigerator case beyond a certain date may be good buys if they still appear fresh. These items are still safe and nutritious and can help in cutting costs.

### **Preparation:**

Before preparing any lean meat or poultry, remove the outside fat or skin. During cooking fat will migrate to the muscle tissue and add extra fat and calories to the lean meat.

Meats vary in tenderness because of the amount of fat and connective tissue in the lean. Less tender cuts, such as the round and chuck, should be cooked by moist-heat methods such as stewing, roasting with liquid or braising to ensure tenderness. Marinades containing lemon juice, vinegar, or meat tenderizers work well. Another option is tenderizing meat with a meat hammer or the top of two knives. Grinding cuts the meat fibers and tenderizes the meat also.

Tender cuts such as loin or rib can be cooked by dry-heat methods: roasting, grilling, broiling, pan broiling, stir-frying and frying.

### **Storage:**

Store meats covered or wrapped in store wrap, plastic bag, wax paper or covered in a container in the refrigerator.

## **Criteria For Measuring Progress**

4-H'ers can:

- Determine best buys by comparing cost per serving.
- Broil meats.
- Explain the difference in moist and dry heat cooking methods.

## Subject Matter

## Suggested Activities

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### Recognition

- Smile.
- Thank 4-H'ers for cooperating in discussion.
- Thank 4-H'ers for helping with kitchen clean up.

# Lesson 3. Convenience Comes In Many Forms

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## Objectives

4-H members will learn the various forms of convenience foods:

- the basics of cooking with milk
- how to evaluate the cost, convenience and quality of convenience and non-convenience foods

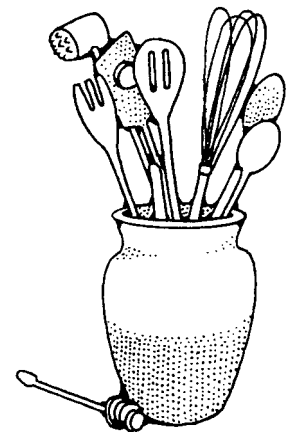
## Before the Meeting

- Duplicate the Sensory Evaluation Form (page 77)
- Purchase the convenience/non-convenience foods (page 15)

## Equipment/Materials

A variety of convenience and non-convenience foods from the kitchen:

- Instant cocoa mix (the type you mix with hot water)
- Chocolate flavored syrup
- Cocoa
- Fresh chocolate milk
- Wooden spoon
- Hot cocoa recipe - your favorite
- Measuring spoon
- Sensory Evaluation Form
- Milk
- Sugar
- Beverage cups
- Measuring cups
- Saucepans



## Time

35 minutes

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### Subject Matter

The term convenience foods probably makes you think of frozen dinners, frozen pizza and instant coffee. What about canned green beans, frozen orange juice or tea bags? These, too, are fully prepared foods in which much of the preparation or processing has been done before the item reaches the grocery shelf. Canned green beans are a convenience food because someone else has already washed, cut and cooked the beans. All we do in the kitchen is heat and eat the beans. Although beans can be processed in the home, most consumers rely on food processors for canned products. Many of the convenience foods we

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### Suggested Activities

Determine the types of food a family purchases. Select a variety of foods from your kitchen that are representative of the types of convenience and non-convenience foods. Have 4-H'ers decide which categories they fit into. Example:

fresh eggs	non-convenience
egg substitute	complex convenience
unshelled nuts	non-convenience
shelled nuts	convenience
pretzels	basic convenience

## Subject Matter

buy, such as frozen T.V. dinners, frozen pizza, bread or orange juice, can also be made at home. We may prefer to use convenience foods for various reasons. Convenience foods require less preparation time or effort, are generally easy to store, and may keep longer than fresh foods. With more women working outside the home and faster paced life-styles, time for food preparation is limited for many families.

According to a national food consumption survey, foods can be put in one of four convenience or non-convenience categories:

**Basic convenience foods** are foods in which preservation is the main convenience. These convenience items usually contain only one ingredient or very few ingredients. Time and energy to preserve the food have been provided by the food processor, but not culinary skill.

**Complex convenience foods** save time and energy in the home. Culinary skill is provided by the processor. Complex convenience foods usually contain several ingredients.

**Manufactured convenience foods** are foods that can also be prepared in the home.

## Suggested Activities

instant oats            manufactured convenience  
3 minutes oats        basic convenience  
Have 4-H'ers list examples of each type of convenience food.

### Show basic convenience foods.

Examples are:

- instant coffee and tea
- self-rising flour
- soft tub margarine
- dry milk and canned milk
- commercially canned or frozen meats, fruits and vegetables
- processed cheese.

### Show complex convenience foods.

Examples are:

- commercially prepared pickles and relishes,
- salad dressings
- quick bread mixes
- luncheon meats and hot dogs
- ready-to-eat meals
- entrees and side dishes.

### Show manufactured convenience foods.

Examples are:

- soft drinks
- ready-to-eat cereals
- saltine or soda crackers
- imitation cheese spreads
- canned meat replacements or supplements
- gum drops and jelly beans.

## Subject Matter

**Non-convenience foods** are fresh, unprocessed foods, home preserved (canned and frozen) foods and ingredient foods. An ingredient food is a processed food product used in food preparation. Ingredient foods either cannot be prepared in the home or are not commonly prepared at home.

The most frequently eaten convenience foods are white bread, soft drinks, saltine crackers, peanut butter, frankfurters, frozen orange juice, bologna, catsup, processed American cheese and powdered instant coffee. The most frequently eaten non-convenience foods are granulated white sugar, fresh white potatoes, whole milk, fresh lettuce, fresh apples, fresh tomatoes, fresh onions, stick margarine and green bananas.

### Cooking Milk

Milk should be heated or cooked slowly at a low temperature, not boiled, to prevent a film from forming on the top. At high temperatures, the protein in milk coagulates or denatures, causing a film on top and a coating on the sides of the pan. Prolonged heating also causes off flavors and sometimes scorching.

### Criteria For Measuring Progress

4-H members can:

- Identify the four types of convenience and non-convenience foods.
- Categorize foods into convenience and non-convenience foods.
- Cook milk without scorching it.

### Recognition

- Smile.
- Thank 4-H'ers for participating in group discussion.
- Comment on their abilities to make sensory evaluation comparisons.

## Suggested Activities

### Show non-convenience foods.

Examples are:

- natural cheeses
- milk
- flour
- eggs
- sugar
- fresh and home preserved vegetables and fruits.

Divide 4-H'ers into two groups. Have one group prepare the cocoa with chocolate syrup and instant cocoa. The other group prepares the cocoa from original ingredients and heat the fresh chocolate milk.

Have each group figure the cost per serving for the two types of hot cocoa. Serve and have each 4-H'er make a sensory evaluation of the hot cocoa samples.

### Discussion Questions

Which hot cocoa:

- was easiest to prepare?
- was most expensive?
- tasted the best?

What advantage does the instant mix have in storage?

How should milk be stored?

What are the main nutrients in milk?

- calcium, carbohydrates, protein, vitamins A and D

What happens to milk when it has been boiled?

- denatures protein

Ask 4-H members about ways to reduce the calories in milk drinks. Use cocoa instead of chocolate. Use skim milk rather than whole milk and artificial sweeteners instead of sugar. Aspartame sweeteners such as NutraSweet® or Equal® are made from protein derivatives. Because protein denatures during heating, these sweeteners should be added after the product has been heated and then allowed to cool.

# Lesson 4. Fruits

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## Objectives

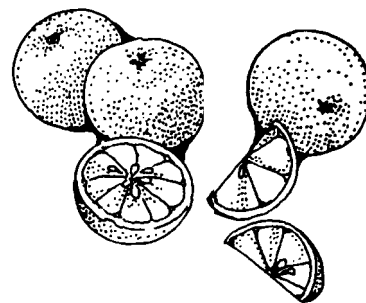
4-H members will learn skills to select, buy, prepare and store fruits.

## Before the Meeting

- Ask your county Extension agent to order copies of the publications L-2215 *Freezing Fruits and Vegetables*, L-1450 *Harvesting Your Own Groceries* and L-1323 *Eat Well for Less From the Fruit and Vegetable Group*
- Purchase selected fruits and serving equipment

## Equipment/Materials

- Fresh fruit in season
- Frozen orange juice concentrate
- Plates
- Mixing bowl
- Paper
- L-2215 *Freezing Fruits and Vegetables*
- L-1450 *Harvesting Your Own Groceries*
- L-1323 *Eat Well for Less From the Fruit and Vegetable Group*
- 1/4 cup sugar
- Apples, pears and strawberries
- Paring knives
- Forks
- Plastic wrap
- Pencils



## Time

35 minutes

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### Subject Matter

Although fruit is one of America's favorite snacks and a popular salad and dessert ingredient, a survey in 1991 showed that consumption of both fruit and vegetables was low. Some 75 percent of American adults ate less than the recommended number of servings. The National Cancer Institute's *5-A-Day for Better Health Program* was designed to help Americans achieve the goal of at least two servings of fruit and three servings of vegetables. Always select firm fruit that is free from decay and bruises. Avoid soft or shriveled fruits.

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### Suggested Activities

Ask members to name their favorite fruit. Ask them to list the nutritive contributions of fruit and why it is important to eat two to four servings daily. Why would fruit be a better snack than a candy bar, cola drink or other concentrated sweet?

Have candy bar wrappers, regular and diet cola labels or cans and a nutritive value of foods source. Let members compare product labels and pick the best snack based on the carbohydrate, protein and fat contents.



### To Cut Costs

- Be ready to substitute one fruit for another if it means a savings and your family will accept the change.
- Check different forms of fresh, canned, dried or frozen fruits to see which is the best buy.
- Limit purchases of fruits at bargain prices to amounts that can be used while they are still good.
- Take advantage of seasonal abundance. Foods in season will be at their peak in quality and are often low in cost.
- Watch for specials on canned and frozen products your family likes. Stock up on good buys if you can store them properly.
- Try lower priced brands and generics. You may like them as well as more expensive brands. Generics may be similar in quality to widely known products, yet cost less.

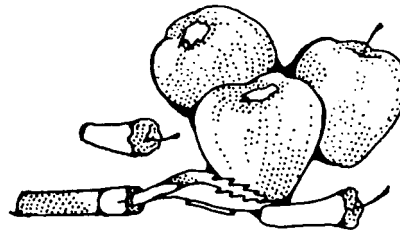
### Preparation

- Wash fresh fruits thoroughly, whether you serve them raw or cooked. Wash berries in a colander under gently running cold water.

When you pare apples and pears, make parings as thin as possible. The skin of ripe peaches and apricots sometimes adheres tightly. To loosen for peeling, dip the fruit into boiling water for about 45 seconds, then into cold water. You can then grasp the loosened skin of the fruit. Peel gently, using the dull edge of a knife.

Some fruits such as apples, peaches, pears, and bananas, turn brown after they have been cut or peeled. To minimize discoloration, dip these fruits into citrus fruit juice (lemon, lime, orange, grapefruit or pineapple).

Fruits placed in a sugar syrup will not turn brown because air cannot reach the fruit. Sugar syrup helps fruit keep their shape, but too much sugar causes the fruit to shrink because sugar draws moisture out of the fruit cells by a process called osmosis. To maintain shape, cook fruits slowly.



Cut the apples and pear in half. Leave one half uncovered. Cover the other half tightly with plastic wrap.

Help 4-H'ers prepare a fresh fruit compote by washing and paring chosen fruits. Dilute 1/4 cup frozen orange juice concentrate with 1/4 cup tap water. Slice fruits into diluted orange juice concentrate and toss to coat all pieces. Serve immediately or chill in the refrigerator.

### Storage

Many fresh fruits remain at their best for only a few days. Other fruits, if stored properly, may keep for months. But all fruits require careful handling and storage to conserve quality. Before storing fruits, sort them and either use or discard damaged fruits immediately. Most fruits, except berries and cherries, should be washed and dried before storing.

Unripe fruits should be left to ripen in open air at room temperature and out of direct sunlight. Some fruits such as grapes and pineapple, will not ripen further after picking.

Avocados should be held at room temperature to ripen. Ripe bananas may be stored in the refrigerator. Skin will darken but flesh will remain flavorful and firm.

Berries and cherries are especially perishable and should be refrigerated as soon as possible. Do not wash them before putting them in the refrigerator. Leave stems on the cherries and caps on the strawberries. Sort them carefully and place loosely in shallow containers so that air can circulate and the berries or cherries on top do not crush those on the bottom.

Citrus fruits are best stored at a cool room temperature (60 to 70 degrees F) and used within two weeks. These fruits may also be stored uncovered in the refrigerator. If they are held too long at cold temperatures, however, the skin may become pitted and the flesh may discolor.

Melons (except watermelons) may be stored at room temperature if they are underripe. Ripe melons should be refrigerated.

### Discussion Questions

1. What is the purpose/function of the orange juice?
2. Why is it important to slice the fruit directly into the orange juice solution?
3. Why did the uncovered apple turn dark?
4. Why did the covered apple not turn dark?

Do an experiment to show the process of osmosis in strawberries. Place two strawberries in 1/4 cup sugar in a small covered bowl in the refrigerator. In the morning notice the physical changes in both strawberries. What happened to the strawberries with sugar? What recommendation would you make to someone who wanted to prepare strawberries with sugar for shortcake? (slice the strawberries, add sugar just before serving to prevent osmosis, which causes the strawberries to shrivel in the experiment.)

Ask members to name their favorite fruit. Ask them to list the nutritive contributions of fruit and why it is important to eat two to four servings daily. Why would fruit be a better snack than a candy bar, concentrated sweet or cola drink?



### Criteria For Measuring Progress

4-H'ers can:

- Select top quality fruits at economical prices.
- Store fruits properly.
- Prepare fruits properly.

### Recognition

- Smile.
- Praise 4-H'ers on doing a neat job of preparing the fruit.
- Thank 4-H'ers for responding to the discussion questions.
- Thank 4-H'ers for cleaning up the kitchen promptly.

# Lesson 5. Freezing

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## Objectives

4-H members review the basic methods of food preservation and learn to blanch and freeze vegetables.

## Before the Meeting

- Study your copy of L-2215 *Freezing Fruits and Vegetables*.
- Buy carrots.

## Equipment/Materials

- 1 pound fresh carrots
- Large kettle or spaghetti cooker
- Paring knives
- Vegetable peeler
- Freezer containers
- L-2215 *Freezing Fruits and Vegetables* (available from your county Extension agent)

## TIME

35 minutes

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### Subject Matter

Food preservation allows us to keep foods grown or produced in times of abundance for later use and to ship to other parts of the world. Man learned centuries ago that cooking meat would temporarily stop the food process of decomposition. With modern technology, we can now store food safely for long periods of time. Preserving food delays spoilage and maintains nutritional quality. As a result of modern preservation, food can be more evenly distributed and the variety of the foods we eat increased.

The basic principle of all processing is to control the growth of microorganisms that cause spoilage and destroy enzymes which reduce quality. This can be accomplished by heat processing (canning), freezing, drying, freeze drying, curing, pickling, jelling, chilling, smoking, fermenting and by use of controlled atmosphere and chemical preservatives.

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### Suggested Activities

Assist 4-H'ers in preparing, blanching, coding, packaging and labeling carrots for the freezer.

#### Discussion Questions

1. Why is it necessary to blanch certain vegetables?
2. What happens if the vegetables are not blanched?



### Freezing

Freezing is a popular means of commercial and home preservation of foods because it keeps foods closer to “fresh picked” than any other preservation method. The first artificial method of creating cold was invented in 1834 by American inventor Jacob Perkins who patented a machine that produced cold by compression. The first commercially frozen foods reached retail outlets in the 1920s. Home freezers began appearing in American homes in the 1930s and the American food system greatly expanded. The low temperature of freezing destroys some bacteria and prevents the growth of others. Preparation for freezing, packaging, rate of freezing and freezer temperature are all important factors in producing high quality frozen foods.

Fruits must be treated to stop the action of enzymes and oxygen that cause frozen fruits to turn brown during storage or thawing. The enzyme action can be controlled by ascorbic acid or vitamin C which may be in the form of citrus juice (lemon or lime) or commercial powders or tablets. The addition of syrup or sugar to fruit before freezing protects it from browning by slowing the action of enzymes and protecting it from air.

Many vegetables must be blanched (heated) before freezing to inactivate enzymes that help the vegetables grow and mature, even after picking. If vegetables are not blanched, they will develop off-flavors during freezing and may discolor and become tough. Blanching also wilts and softens vegetables making them easier to pack, enhances color and reduces the bacteria on the vegetables.

Foods must be frozen quickly after packaging to maintain good quality.

Store frozen foods at 0° F. Storage at higher temperatures, such as in the freezer compartment of a home refrigerator greatly reduces storage time. Storage in frost free freezers also reduces storage time because moisture is removed from the air in the defrosting process. Improperly packaged foods stored in frost free freezers lose quality very quickly due to freezer burn.

Show and discuss several types of freezer containers.

Let 4-H'ers discuss the types of food preservation done in their homes.

Demonstrate drugstore wrap on whole chicken, several slices of bread, etc. Use proper tape and date each item prior to freezing.

## Subject Matter

## Suggested Activities

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Proper packaging of frozen foods is important to keep food from drying out and to preserve food value, flavor, color and texture. Packing materials should be moisture-vapor-proof to prevent evaporation and maintain high quality. See pages 1 and 2 of L-2215 *Freezing Fruits and Vegetables* for more details.

### Criteria For Measuring Progress

4-H'ers can:

- Identify the forms of food preservation.
- Blanch vegetables for freezing.

### Recognition

- Smile.
- Compliment 4-H'ers on doing a good job of preparing carrots for the freezer.
- Thank 4-H'ers for cleaning up kitchen after preparing the carrots.

# Lesson 6. Foodborne Bacteria –"Spoilage" Versus "Illness"

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## Objectives

4-H members learn the most common foodborne bacteria which causes human illness.

## Before the Meeting

- Borrow an overhead projector, and make overheads of the four most wanted bacteria and danger zone. If the equipment is not available you could make a poster or have the four sheets duplicated as handouts.
- Allow cheese to mold in warm, moist place for several days.

## Equipment/Materials

- Bring piece of moldy cheese
- Overheads of four most wanted bacteria and danger zone

## Time

30 minutes

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Subject Matter	Suggested Activities
<p>If food is improperly handled, bacteria or other microorganisms such as molds, yeast, protozoa and viruses can grow on it. Keeping food wholesome and safe to eat is easier than ever before because of modern processing techniques, refrigeration and freezing. Government and the food industry go to great lengths to protect and keep the food supply safe. The consumer's responsibility is to keep the food safe once it is purchased.</p> <p>Food spoilage and foodborne illness are caused by bacteria. Basically two types of bacteria exist: those causing "spoilage" and those causing "illness." Spoilage bacteria can make food spoil or taste bad, such as those in soured milk. Illness-causing bacteria can grow in our food undetected as long as they have heat and water. They can make you ill with diarrhea, vomiting and stomach cramps anywhere from 3 to 8 hours and even up to 24 to 48 hours after eating. Avoid both types of bacteria as well by remembering to keep food clean and at the proper temperature. By learning about bacteria</p>	<p>First ask 4-H'ers to describe what is present on the piece of moldy cheese or bread. Explain that the mold they see contains billions of organisms too tiny to see. Ask them what type of bacteria these are. (spoilage)</p> <p>Use the four most wanted bacteria overheads to describe the illness-causing bacteria:</p> <ul style="list-style-type: none"><li>■ <i>Salmonella</i></li><li>■ <i>Staphylococcus aureus</i></li><li>■ <i>Clostridium botulinum</i></li><li>■ <i>Clostridium perfringens</i></li></ul> <p>Discuss each of the four types of bacteria causing illness. Complete the lesson by asking the group the following questions. If participants have difficulty answering, help them.</p> <h3>Discussion Questions</h3> <ol style="list-style-type: none"><li>1. What bacteria is spread by sneezes, coughs and hands? (<i>Staphylococcus aureus</i>)</li></ol>

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## Subject Matter

and how to destroy them or prevent their growth, we can reduce spoilage and prevent illness.

Who are the illness-causing bacteria? The four most wanted or common bacteria which cause foodborne illness are *Salmonella*, *Clostridium perfringens*, *Staphylococcus aureus* and *Clostridium botulinum*. Here are the facts about the four most common bacteria.

**Salmonella: Known Associates** are raw meat, fish, poultry, eggs and dairy products.

**Hideouts** are in the intestinal tracts of man, animals, insects and rodents. **Crimes** are causing a disease called Salmonellosis that causes diarrhea, abdominal cramps and vomiting within 12 to 36 hours after eating food containing this "most wanted" bacteria. It can be deadly in persons who are very young, very old or have impaired immune systems. **Ways to outsmart Salmonella** are cooking foods thoroughly, keeping hot foods hot and cold foods cold, keeping cooking utensils clean, reheating leftovers to at least 160° F. and washing hands before eating and after handling raw foods.

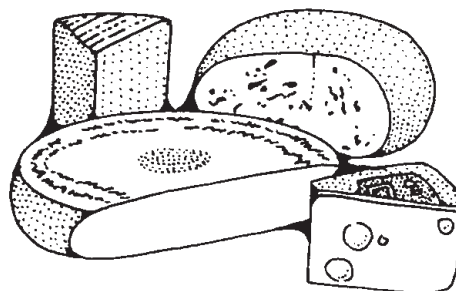
**Staphylococcus aureus: Hideouts** for *Staphylococcus aureus* are nasal passages and skin or hides of humans and animals and can be transmitted by sneezes, coughs and unclean hands. **Known associates** are custards, custard filled foods, potato salad, moist meat dishes such as chicken and macaroni salad, ham, salami and cheese. *Staphylococcus aureus* grows within 3 to 8 hours, and it produces a toxin that is really tough to destroy. **Crimes** of this bacteria are diarrhea, nausea, vomiting and abdominal cramps. This bacteria leaves you in misery for one to two days. **Ways to outsmart Staphylococcus aureus** are to wear gloves or avoid handling food when you have an infected cut, wash hands before handling food, use clean utensils, keep countertops clean, cook food thoroughly, keep hot foods hot (above 140° F., 60° C.) and cold foods cold (at or below 40° F., 4° C.).

## Suggested Activities

2. Which bacteria is carried by pets, rodents and insects? (*Salmonella*)
3. Which bacteria is the most deadly? (*Clostridium botulinum*)
4. Which bacteria produces a toxin that can't be destroyed by heat? (*Staphylococcus aureus*)
5. Which bacteria can survive cooking? (*Clostridium perfringens*)
6. Which bacteria loves stews, soups and gravies? (*Clostridium perfringens*)
7. Which bacteria is really tough on infants and older people? (*Salmonella*)
8. Which bacteria produces a toxin that is easy to destroy by boiling for 10 minutes? (*Clostridium botulinum*)
9. Which bacteria makes you sick quicker? (*Staphylococcus aureus*)
10. What are the common symptoms of foodborne illness?

Ask 4-H'ers to share any experience they or their families have had with foodborne illness.

Show visual of the thermometer with danger zone.





***Clostridium botulinum***: This is a serious “illness-causing bacteria” because it can cause death within 24 hours! **Known associates** are improperly canned low-acid foods like meat, smoked fish, fish and most vegetables. This spore-forming bacteria **hides out** in places with no oxygen (as in a sealed container) where it grows and produces toxin. **Crimes** of this bacteria include general weakness, constipation, headaches, double vision, impaired speech, trouble chewing and swallowing, respiratory paralysis and death within 12 to 36 hours after eating infected food. It kills about 65 out of 100 people who have the misfortune of eating foods containing the toxins. if you survive, you will be sick about three to six days. **Ways to outsmart *Clostridium botulinum*** are to follow recommended U.S.D.A. home canning guidelines including proper food processing of canned foods in a waterbath or pressure canner to avoid tasting food that smells foul or is in a can that leaks, bulges or is badly indented; and avoid eating food from a can or jar that is cracked, has a loose or bulging lid or that squirts liquid when opened. The toxin can be destroyed by boiling the infested foods for 10 to 20 minutes.

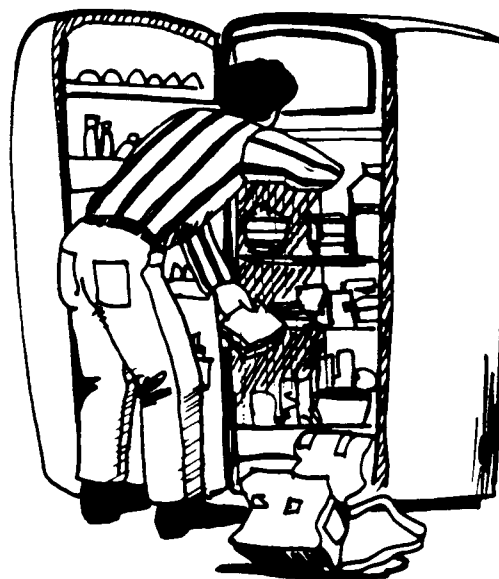
***Clostridium perfringens***: These illness-causing bacteria’s **known associates** are high protein foods such as poultry, eggs or meat such as stews, soups or gravies. Normal **hideouts** for ***Clostridium perfringens*** are soil, sewage, dust, crops, meat and poultry. A spore-forming bacteria that grows in the absence of oxygen, normal cooking temperatures destroy most of it, but heat-resistant spores can survive.

***Clostridium perfringens*** is transmitted by eating food containing very large numbers of the bacteria. **Crimes** include nausea, diarrhea, gas pains, and acute inflammation of your stomach and intestines. It can make you sick in 8 to 20 hours but only lasts for one day. **Ways to outsmart** this “illness-causing bacteria” are to cook high protein foods thoroughly, keep hot food hot, cold food cold and refrigerate food in shallow containers.

Remind 4-H members that some microorganisms are good and some are bad. Describe the two types of a bacteria: those causing illness and those causing spoilage. (Refer to hand-outs).

Ask them how they can outsmart all bacteria by food safety rules: (Again show the danger zone thermometer)

- Keep hot food hot.
- Keep cold food cold.
- Keep food clean and avoid cross-contamination (transfer of harmful bacteria from one food or other source to another food).



### Criteria For Measuring Progress

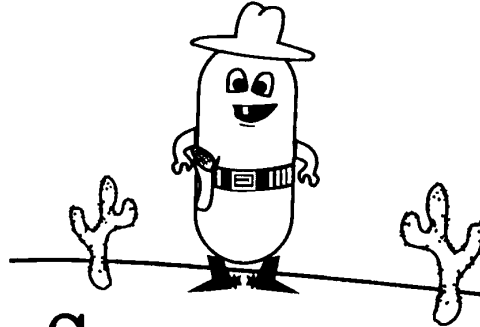
Each participating 4-H'er can:

- Name the four most common foodborne bacteria.
- Identify ways that bacteria enter into food.
- List the common symptoms of foodborne illness.

### Recognition

- Smile.
- Thank members for presenting the story of foodborne bacteria characters.
- Congratulate members on their knowledge of foodborne bacteria.

# MOST WANTED



## SALMONELLA

**Known Associates:** Raw meats, poultry, eggs, milk, and products made from them.

**Hide-outs:** On people, pets, insects, and rodents.

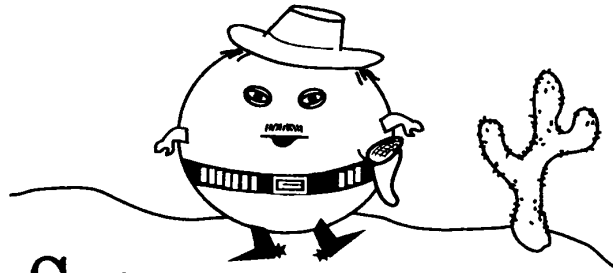
**Crimes:** Diarrhea, abdominal cramps, and vomiting within 12 - 36 hours after eating food containing bacteria.

**Ways to Outsmart Them:**

- Cook foods thoroughly
- Keep hot foods hot
- Keep cooking surfaces and utensils clean
- Refrigerate or freeze foods promptly
- Reheat leftovers to at least 160° F.
- Wash hands before eating and after handling raw foods.

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# MOST WANTED



## STAPHYLOCOCCUS AUREUS

**Known Associates:** Moist meat dishes, meat salads, sliced meats, potato salad, and cream-filled foods, such as eclairs, cream puffs, and cake fillings.

**Hide-outs:** Nasal passages of humans and animals and on skin, especially face and arms.

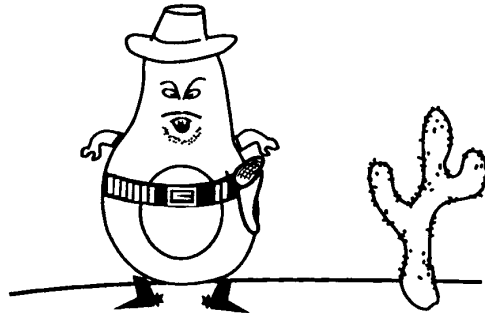
**Crimes:** Nausea, vomiting, diarrhea, and severe cramps within 3 - 8 hours.

**Ways to Outsmart Them:**

- Wear gloves or don't handle food if you have an infected cut.
- Wash hands before handling food.
- Clean utensils and countertops with hot, soapy water.
- Cook foods thoroughly.
- Cool or freeze food immediately after a meal.

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## MOST WANTED



## CLOSTRIDIUM BOTULINUM

**Known Associates:** Improperly canned low acid foods, like meat, poultry, fish, and most vegetables.

**Hide-outs:** Soil, water, produce, and other foods. They only grow in places that don't have oxygen, like the center of foods or in canned foods.

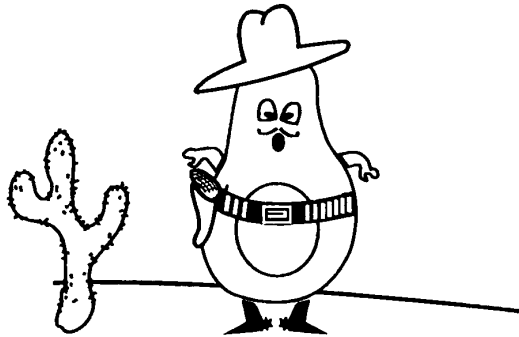
**Crimes:** General weakness, constipation, headache, double vision, impaired speech, trouble chewing and swallowing, death, within 12 - 36 hours after eating infected food.

### **Ways to Outsmart Them:**

- Follow recommended guidelines for home canning.
- Never taste food that smells foul or is in a can that leaks, bulges, or is badly dented.
- Never eat food from a can or jar that is cracked, has a loose or bulging lid, or that spurts liquid when it is opened.

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## MOST WANTED



## CLOSTRIDIUM PERFRINGENS

**Known Associates:** High protein foods like meat, poultry, and eggs.

**Hide-outs:** Soil, sewage, dust, crops, meat, and poultry.

**Crimes:** Nausea, diarrhea, and gas pains 8 - 24 hours after eating.

**Ways to Outsmart Them:**

- Cook high protein foods thoroughly
- Keep hot foods hot
- Keep cold foods cold
- Refrigerate foods in shallow containers

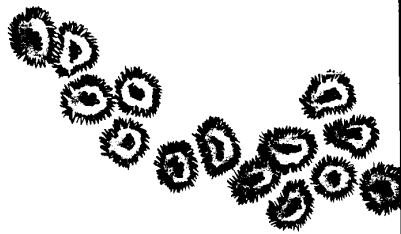
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**COOK TO  
SAFE  
TEMPERATURES**



**DANGER ZONE**

**DANGER ZONE**

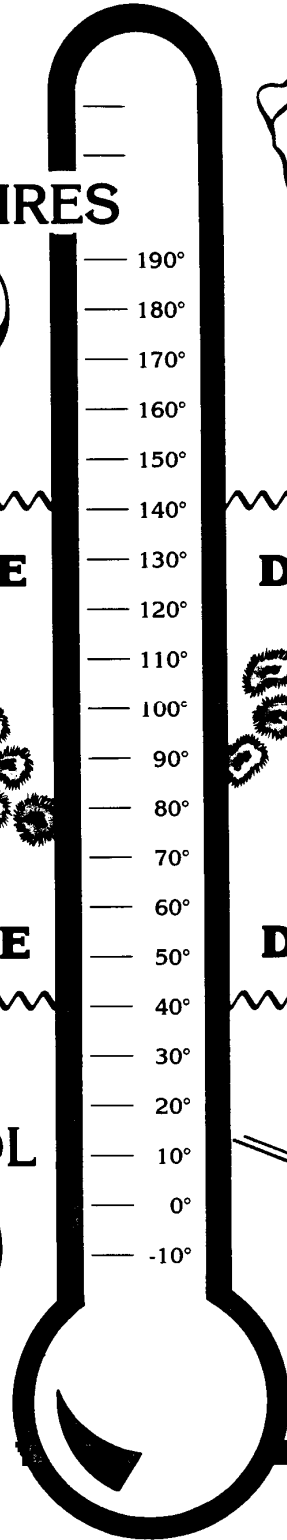


**DANGER ZONE**

**DANGER ZONE**



**KEEP  
FOOD COOL**



**DANGER ZONE**

# Lesson 7. Food Stores Come In Varieties

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## Objectives

4-H members recognize the wide variety of food stores, their services and selection.

## Before the Meeting

- Secure prices either from newspaper ads or the grocery store for a pound or unit of regular ground beef, white bread, ground coffee, eggs (1 dozen large and medium), whole and skim milk (quart), lettuce (1 head), and potatoes (5 pounds).

## Equipment/Materials

- Newsprint or poster board
- Felt marker
- Prices for a pound or unit of regular ground beef, white bread, ground coffee, eggs (1 dozen large and medium), whole and skim milk (quart), lettuce (1 head), and potatoes (5 pounds).



## Time

30 minutes

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## Subject Matter

Today's consumer has ready access to a variety of food stores. A closer look at each one will help you decide what food products you want to buy at different stores.

**Supermarkets** are grocery stores that sell over a million dollars worth of food each year. They offer a wide variety of food products and generally have comparatively low prices because they purchase in large quantities. Supermarkets provide "one-stop" shopping. Many supermarkets are expanding to include fast food service, bakeries, delicatessens and non-food sections that include everything from clothing to automotive supplies.

**Small stores and superettes** offer fewer services and food items, and prices may not be as competitive as supermarket prices. However, they do offer the advantages of serving smaller towns and locations in urban areas too crowded for supermarkets.

**No-frills grocery stores** are a new concept in retail grocery sales. Foods are generally displayed in open cases with no individual pricing. These stores specialize mainly in canned

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## Suggested Activities

Ask group members to collect food prices of selected items and list special services from each of the different types of food stores. Have 4-H'ers interview the store manager to learn the busiest times and days of the week to shop. Bring the prices to the meeting. Have each member report on a store.

### Discussion Questions

(List responses on newsprint)

1. Which store offered
  - the best price on specific items?
  - the highest price on specific items?
  - the best quality food items
  - the poorest quality food items?
  - the largest number of services? (check cashing, delicatessen, bakery, carry out, stamps, coupon redemption, etc.)
  - the smallest number of services?
  - the greatest selection of food items?
  - the least selection of food items?



## Subject Matter

## Suggested Activities

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and packaged items that do not perish quickly at room temperature and have a limited selection. These stores appeal to price conscious consumers. Money can be saved at no-frills grocery stores, but dairy products, fresh meats and other refrigerated and frozen foods must be purchased elsewhere.

**Convenience stores** are small, compact stores that are located, as their name indicates, in convenient locations for quick shopping. Selection is narrower and prices are generally higher than at larger stores.

**Farmers' markets** can be as simple as a small roadside stand selling seasonal produce or health foods. The products they sell are generally unique in some manner and respond to the needs of a limited clientele.

**Food co-ops** are a growing means of purchasing food at lower cost. The co-op generally consists of a group of families (usually 10 to 12) who pay a set amount of money each week. Members rotate the purchasing of produce or other food items purchased wholesale or at farmers' markets. Co-ops offer the advantages of lower cost quantity buying and freshness.

**Wholesale clubs** are a newer concept of purchasing foods, household goods, appliances and other supplies in larger quantities at lower cost. An annual membership fee is required. Oftentimes buying in larger quantities when a portion of the products are wanted is not the best choice.

### When to Shop

The day of the week and time of day consumers shop has an effect on how well you shop. Double stamp days, nights after 5:00 p.m. and Saturdays are times when stores draw the most consumers so it takes longer to shop and check out. You can do a better job of shopping when you are not rushed and can take time to consider each purchase. Learn when produce counters are replenished to get the best selection.

How does the price of a gallon of milk, a loaf of bread, a box of chocolate cake mix and a six pack of colas compare at convenience stores to larger supermarkets?

### Criteria For Measuring Progress

4-H'ers can:

- Identify the advantages and disadvantages of different types of food stores.
- List the best times to shop.

### Recognition

- Smile.
- Thank 4-H'ers for gathering food prices.
- Compliment 4-H'ers on participation in group discussions.

# Lesson 8. Poultry and Eggs

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## Objectives

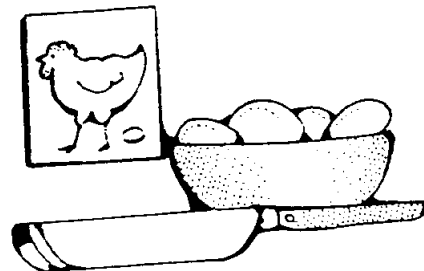
4-H members learn to select, buy, prepare and store poultry products.

## Before the Meeting

- Buy whole chicken for the demonstration.
- Prepare an omelet following the directions in the lesson prior to the meeting to practice the techniques.
- Purchase the necessary ingredients to make the omelet.

## Equipment/Materials

- Omelet pan or skillet
- Plates
- Eggs - 6
- 3/4 teaspoon of salt
- Spatula
- Fillings for omelet - optional
- Butter or margarine
- Dash of pepper
- Milk
- Whole chicken



## Time

35 minutes

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### Subject Matter

Chicken and turkey provide economical and versatile protein main dishes for family meals. They are available in more forms than ever before.

#### Selection

Chilled, ready-to-cook chickens are sold whole and in halves, quarters, and serving pieces. Young chickens include broilers and fryers. Mature birds are called hens, baking chickens, stewing chickens, or fowl. Many convenience products including chicken rolls, fried chicken parts, and patties are available.

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### Suggested Activities

Assist 4-H'ers in preparing a plain omelet: Beat eggs until yolks and whites are well mixed. Add salt, pepper and milk. Melt fat in a large fry pan and pour in the egg mixture. Cook over moderate heat. As the omelet cooks, lift edges toward the center and tip pan so the uncooked mixture flows under the cooked portion. Continue cooking until bottom is light brown. Fold one-half of the omelet over the other half and serve immediately.

## Subject Matter

## Suggested Activities

Turkeys are generally available frozen whole, but in some areas turkey halves, quarters, parts, steaks, ground turkey and turkey cutlets can be found.

Look for chicken and turkeys that are plump and full.

Eggs are one of the most versatile foods to be found. Besides making a great breakfast food and main dish, eggs thicken, leaven, blend and emulsify other dishes.

### Cost Cutters

- Consider the cost per serving. Whole poultry is usually a better buy than poultry pieces.
- Stock up when prices are seasonably low if freezer storage is available.
- Whole chicken yields 2 to 3 servings per pound, except the breast which provides 3 servings per pound. Chicken wings yield only 1 to 2 servings per pound.
- Purchase higher quality, large eggs for frying, poaching and hard cooking. Purchase lower quality eggs for baking.

### Preparation

- If frozen, thaw poultry either in the refrigerator overnight or under cold running water prior to preparing.
- Wash poultry under cold, running water before cooking.
- Regardless of cooking method used, cook until completely done. Juices should run clear.
- Remove stuffing from poultry immediately after cooking.
- Cooking time is very important when cooking eggs because overcooking shrinks the protein and makes the white tough and the yolk mealy.

### Storage

- Wrap poultry loosely and store in the coldest part of the refrigerator. Use within 1 to 2 days.

### Discussion Questions

1. Why is the omelet cooked over moderate heat?
2. What can be added to or put on top of the omelet to add variety?
3. Can omelets be served just at breakfast?

Demonstrate to 4-H'ers how to cut up a whole chicken. Ask if it is always best to buy, cut up and serve a whole chicken to your family or is it best to buy and to serve just the pieces they prefer?

If they would prepare the whole chicken, what other preparation techniques should they follow? Never cut up chicken on the same cutting board used for uncooked meat. Remove outside skin prior to cooking. Select the preparation method that does not add extra fat. Cook well done.

## Subject Matter

## Suggested Activities

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- Store eggs in the refrigerator in the carton or egg keeper with the large end up. Use in one week for best quality.

### Criteria For Measuring Progress

4-H'ers can:

- Prepare an omelet.
- Select and store poultry properly.

### Recognition

- Smile.
- Thank 4-H'ers for participating in discussion questions.
- Congratulate 4-H'ers on preparing omelet.

# Lesson 9. Convenience Foods

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## Objectives

4-H members learn how to compare quality in convenience and non-convenience foods in relation to flavor, time and energy.

## Before the Meeting

- Duplicate Sensory Evaluation Form for each member (page 77).
- Buy ingredients for biscuits, biscuit mix and canned biscuits.
- Read and select your favorite biscuit recipe out of one of your own cookbooks.

## Equipment/Materials

- Paper
- Mixing bowls
- Measuring cups
- Vegetable oil
- Canned biscuits - least expensive
- Biscuit mix
- Ingredients for homemade biscuits
- Pencils
- Measuring spoons
- Baking sheet
- Paper plates
- Canned biscuits - most expensive
- Heat-and-eat biscuits
- Your favorite recipe for biscuits

## Time

35 minutes

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### Subject Matter

Despite the cost, convenience foods may be the best buy for the homemaker with limited time or cooking skills and for the small family or person living alone.

Convenience foods are those that have been processed or prepared before reaching the grocer's shelf, saving the homemaker from doing the work from original ingredients.

These foods usually save preparation time and energy, and some, such as frozen orange juice, are even more economical than freshly-squeezed orange juice.

Ask these questions when deciding whether to purchase convenience foods or not:

- Would it meet the quality of my home-prepared variety?

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### Suggested Activities

Divide 4-H'ers into two groups. Have group 1 prepare the canned biscuits and biscuit mix. Have group 2 prepare heat-and-eat biscuits and homemade biscuits.

While the biscuits are baking, have 4-H'ers determine the cost per serving of the four types of biscuits. Conduct a sensory evaluation of each type of biscuit.

### Discussion Questions

1. Which biscuits:
  - taste the best?
  - are least tasty?
  - have the best appearance?
  - have the best aroma?

## Subject Matter

- Would the product relieve me of work I would rather not do? Example: Shelling peas
- Will this product provide as many nutrients as my home-prepared product?
- Will the time I save by using this product allow time for other activities?
- Will it require special storage facilities?
- Will it cost more or less per serving than the home-prepared product?

Read the label on convenience food packages to be certain that convenience foods similar to enriched and fortified home-prepared foods are also enriched and fortified.

### Criteria For Measuring Progress

4-H'ers can consider:

- Time in evaluating the use of convenience foods.
- Cost in evaluating the use of convenience foods.
- Quality in evaluating the use of convenience foods.

### Recognition

- Smile.
- Compliment 4-H'ers on preparation of biscuits.
- Have 4-H'ers tell value of Sensory Evaluation.

## Suggested Activities

- have the best texture?
  - take the least time to prepare?
  - take the most time to prepare?
2. What are the advantages and disadvantages of each type of biscuit?
  3. Did placement in the oven affect the appearance? If so, why?
  4. Are there times when one type of a more expensive food would be a good buy? When and why? (canned biscuits would be a good buy for the homemaker with limited time or cooking skills—and for the small family or person living alone.)
  5. Are there times when it would be worth the time to make biscuits from scratch? When and why?
  6. What are some reasons why biscuits may not have risen properly?

# Lesson 10. Milk, Yogurt and Cheese — Choices for the Dairy Dollar

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## Objectives

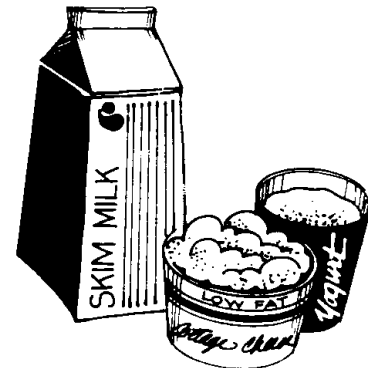
4-H members learn to select, buy, prepare, and store milk products.

## Before the Meeting

- Purchase/assemble ingredients for Old English Cheese Soup.
- Write directions for making the soup on a poster board or newsprint prior to the meeting.
- Gather empty containers of various forms of regular and low fat dairy products.
- Collect ads from local paper on various milk products.

## Equipment/Materials

- Skillet
- Wooden spoon
- Soup bowls
- Spoons
- Measuring cups
- Measuring spoons
- Various forms of milk (listed in lesson)



## Ingredients of Old English Cheese Soup

- 3/4 cup butter or margarine, divided
- 1/2 cup finely chopped celery
- 1/2 cup finely chopped carrots
- 1/2 cup finely chopped onions
- 1/2 cup finely chopped green peppers
- 6 tablespoons all-purpose flour
- 4 cups milk - reconstituted from instant nonfat dry milk
- 1 teaspoon salt
- 2 cups shredded sharp pasteurized process American Cheese
- 2 cups clear chicken broth

## Time

35 minutes



## Subject Matter

Americans consumed slightly less milk and fewer milk products in 1989-90 than in previous decades according to a Nationwide Food Consumption Survey. Nearly 8 out of 10 Americans in each income group had one or more milk products on any given day.

Milk and dairy products are the best sources of mineral calcium in the diet. Also milk products provide high quality protein, carbohydrates and fat. Milk products are a primary source for potassium, calcium, phosphorus, magnesium and iodine.

Milk is available in many forms including whole, 2% fat, 1 1/2% fat, skim and flavored fresh milk, cultured milk and half-and-half (milk and cream). Other forms of milk include evaporated and sweetened condensed milk, dry milk, fresh and cultured cream, and frozen desserts.

Most fresh, whole pasteurized milk is homogenized to disperse the fat evenly through the milk.

Americans consume more low-fat and skim milk, but less whole milk and fewer other fluid milk products. Two percent fat milk has some of the fat removed and provides about 140 calories in comparison to about 160 calories for whole milk. You can save about 72 calories by selecting skim milk instead of whole milk.

Fortified milk has vitamins added and, sometimes, minerals.

**Cultured buttermilk** is made by adding lactic acid-producing bacteria to fresh, pasteurized skim milk. This mildly acidic product is much thicker than skim milk. Yogurt, also a mildly acidic product, is usually made by combining skim or partially skim milk with a bacterial culture.

**Evaporated milk** is prepared by removing about half of the water from fresh milk and adding vitamin D. When mixed with an equal volume of water, its nutritive value is about the same as the milk from which it was made.

**Sweetened condensed milk**, which contains about 40 percent sugar, has about half the water removed. Also a low-fat version is available.

## Suggested Activities

Have a variety of milk to show and sample. As you discuss each form, show either an empty container or a clipping from magazines or newspapers. You might ask a local dairy or grocery store to donate a sample of each type for group members to sample and compare.

Have the group prepare Old English Cheese Soup to learn how to make a white sauce and to add cheese last to prevent burning.

### **Directions for Preparing Old English Cheese Soup (ingredients on page 41):**

Melt 1/4 cup butter in skillet; add vegetables, and saute until crisp-tender. Set aside.

Melt 1/2 cup margarine or butter in a Dutch oven over low heat. Gradually stir in flour; cook, stirring constantly, until bubbly. (Note: Chefs refer to the fat/flour combination as making a roux, pronounced "roo". This procedure is also used in making gravies). Gradually stir in milk, cook stirring constantly, until mixture is smooth and thickened. Add sauteed vegetables, salt and cheese, and broth; cook, stirring frequently, until cheese melts and mixture is well-heated.

**Dry milk** has almost all of the water removed during processing. Most dry milk on the retail market is the instant kind that dissolves readily when stirred into water.

**Nonfat dry milk** contains all of the nutrients of fluid whole milk except the fat.

**Whole dry milk**—when reconstituted with the proper volume of water—has about the same nutritive value as whole fluid milk.

**Lactose free milk** can be purchased in the dairy section of local grocery stores in regular, skim or non-fat varieties. It is used by persons who have an intolerance to regular milk or milk products. The cost is more expensive because they have to process the milk more to remove the sugar lactose.

Today you can buy milk in many forms—some costing considerably more than others. Price depends on whether milk is fresh, cultured, canned, or dried; whether part of the fat has been removed; and whether vitamins and minerals and milk solids have been added.

The size of the milk container, where you buy milk, and whether it is delivered to your home make a difference in the price of milk, too.

### To cut costs

- Buy fresh fluid milk at a supermarket or retail grocery store. Home-delivered milk usually costs more. Milk at small special-service stores may also cost more.
- Buy fresh milk in 1/2- to 1-gallon containers if you use that much milk without waste. You may save 10 cents or more per quart by buying containers larger than quart size.
- Use nonfat dry milk in cooking and as a beverage; mix equal amounts of fresh whole milk and reconstituted nonfat dry milk for drinking.
- Buy nonfat dry milk in as large a package as you can store and use without waste. If nonfat dry milk is stored in a cool, dry place it will remain usable for several months.

## Subject Matter

## Suggested Activities

### Preparation

Milk should be heated or cooked at a low temperature. Heat it slowly; do not let it boil. With care, milk can be heated satisfactorily over direct heat. A double boiler also works well for heating milk.

At high temperatures, the protein in milk coagulates into a film on top and a coating on sides of the pan. Prolonged high temperature also causes off flavors and sometimes scorching.

Milk mixtures thickened with flour or cornstarch need constant stirring during cooking to prevent lumping.

Use low oven temperatures for baking casseroles containing a high proportion of milk.

Acids such as tomato juice or lemon juice often cause hot milk to curdle. To prevent this in tomato soup, thicken the milk first and add tomato juice shortly before serving. Or make a thickened tomato sauce and add it to hot milk just before serving.

### Storage

Fresh dairy products are highly perishable. Keep them clean, cold, and tightly covered. Refrigerate fresh milk, cream and milk products as soon as possible after purchase or delivery. Don't mix new milk with old except for immediate use. If dry milk is exposed to air during storage, it may become lumpy and stale. After dry milk is mixed with water, store it in a refrigerator and treat it like fresh milk.

Keep unopened nonfat dry milk at a temperature of 75° F. or lower. Keep the unused portion in the original package or transfer it to a tightly covered container. Close the package immediately.

### Criteria For Measuring Progress

4-H'ers should be able to:

- Identify best buys for milk and dairy group foods.
- Tell how milk and dairy products should be stored.
- Prepare a milk-based soup and serve to group.

### Discussion Questions

1. Why are the butter and flour heated together before the milk added? What happens if you add flour to milk?
2. Why is it necessary to stir the mixture constantly until thickened?
3. Why is the cheese added last and stirred frequently?

Have ads from local papers. Ask 4-H members to give prices for various milk products. Or ask them to write down the different forms of milk available in grocery stores. For the next meeting ask them to bring in a price comparison of the different forms of milk. Have them figure the price per serving of each form. This could be done as a group if you show them the different forms with the price per container marked.

## Subject Matter

## Suggested Activities

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### Recognition

- Smile.
- Compliment group on their table manners.
- Thank 4-H'ers for assisting in preparing the soup.
- Recognize 4-H'ers for participating in discussion periods.

# Lesson 11. Waste Not Food In the Home

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## Objectives

4-H members learn food storage techniques.

## Before the Meeting

- Ask agent to obtain copies for you of Extension publication L-2215 *Freezing Fruits and Vegetables*
- Buy freezing supplies listed under Equipment/Materials

## Equipment/Materials

- Your kitchen (your kitchen will be the “live” example for this lesson)
- Freezer wrap
- Freezer tape
- Freezer marker
- Freezer containers
- Extension publication L-2215 *Freezing Fruits and Vegetables*

## Time

30 minutes

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Subject Matter	Suggested Activities
<p>We all waste food at home or when eating out through improper storage, preparing, or serving more than is eaten or by ordering too much food when eating out. When food is wasted, so are pennies, nickels, dimes, quarters, and even dollars. In fact, most families waste 10 percent of the food they purchase—that’s one dollar out of every ten! If a family of four spends \$95 a week for food and wastes 10 percent of that food, the family has lost about \$465 a year, or about five weeks of groceries!</p> <p>Let’s look at some ways you and your family can reduce food waste and save money.</p> <h3>Shelf stable food items</h3> <p>Although shelf stable foods, such as flour, cornmeal, shortening, spices, and mixes do not spoil as readily as refrigerator and freezer foods, they do lose quality over time. Store canned foods in a cool, dry place. Exposure to high temperature, or storage near a range or</p>	<p>Conduct a “treasure hunt” for foods that are stored improperly in the kitchen. Before the lesson, you will need to place some improperly packaged or stored foods on your cabinet shelves, and in your refrigerator and freezer. Here are some suggestions:</p> <p><b>In the refrigerator:</b></p> <ul style="list-style-type: none"><li>■ uncovered leftovers</li><li>■ uncovered onions</li><li>■ potatoes</li><li>■ juice in an uncovered container</li><li>■ cheese that has been opened, but not rewrapped properly</li></ul> <p><b>In the freezer:</b></p> <ul style="list-style-type: none"><li>■ meat in store wrapping</li><li>■ food stored in a bread wrapper</li></ul>

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## Subject Matter

refrigerator unit promotes the growth of bacteria that causes spoilage.

If breads mold or become stale during shelf storage, refrigerate or freeze portions you cannot eat before it becomes stale or mold growth occurs.

### Fresh food and refrigerator storage

Fresh foods are often a source of spoilage. Proper refrigerator storage can help to preserve nutrients and improve keeping time of foods. In the refrigerator, always cover foods with wax paper, foil or plastic wrap, or store them in a plastic bag or container with a tight fitting lid. Foods stored uncovered lose moisture and can pick up flavors from other foods. Vegetables except potatoes, sweet potatoes, hard shelled squashes, mature onions, eggplant, and rutabagas, keep best in the refrigerator. Store vegetables in plastic bags, plastic containers or the vegetable crisper. The crisper performs better if it is at least two-thirds full. If the crisper is not two-thirds full, vegetables will keep better in plastic bags. Purchase only the amount your family can eat before the vegetables lose quality and begin to spoil. Any food purchased at bargain prices is not a bargain if it is not eaten and is allowed to spoil.

To improve organization and encourage use of foods before spoilage, store like foods together. For instance, leftovers on one shelf, vegetables in the crisper, meats on the top shelf, and dairy products on one shelf.

### Frozen foods and freezer storage

Proper packaging and rotation of foods is the key to reducing waste in freezer storage. Proper packaging includes moisture-vapor-resistant freezer bags and freezer paper, aluminum foil, rigid plastic containers, and heat seal bags. Margarine tubs and similar containers can be used in the freezer, but the lid should be sealed with freezer tape to prevent loss of moisture.

Meat packaged for display in the refrigerator section of the supermarket should be over wrapped with freezer paper or foil. The store packaging is not intended for long term freezer storage.

## Suggested Activities

- food stored in a margarine or butter tub and not sealed with tape
- food wrapped in wax paper

### In cabinet shelf or counter:

- spices stored directly above the stove
- flour or cornmeal in an opened unsealed store package
- milk
- food stored with cleaning supplies
- food stored on floor

Give each member a paper and pencil and ten minutes to find the improperly stored foods. Recognize the one who finds the most. Discuss the proper way and place to store the foods that were improperly stored.

Demonstrate the drugstore wrap. Allow 4-H'ers to do the drugstore wrap individually. Make certain they label their package (you can use empty boxes for wrapping) with the contents and date.

After the discussion, let the 4-H'ers rewrap and replace items in proper places.

Have 4-H'ers to plan a holiday meal in which most of the meal can be made ahead and stored in the freezer. Take into consideration the nutritional value of this holiday meal. Ask them to write their meal plan on a sheet of paper. Make plans and report them to the entire group.

## Subject Matter

## Suggested Activities

On the outside of the package, write the date of freezing and the contents of each container. It is also helpful to write the date the items should be used by on the container.

The freezer compartment of refrigerators is not designed for long term freezer storage because the temperature does not stay as cold as a regular freezer. Particular care should be taken in storing foods in a frost-free freezer. Moisture is removed from the air in the automatic defrost cycle and if foods are improperly packaged, moisture is removed from the food too.

### Leftover foods

Leftover foods are the result of preparing more than you can eat at one meal. Leftovers are not waste if they are planned into and eaten at other meals. They are a waste if left in the refrigerator to mold and spoil. Consider having a “leftover meal” once a week, or package foods in serving sizes in dishes that can be reheated in the microwave or conventional oven with other parts of the meal.

If recipes prepare too much for one meal, freeze the extra and save for future meals.

Have 4-H’ers plan some dishes to help utilize leftover turkey from the holidays.

### Criteria For Measuring Progress

- 4-H’ers can identify two ways to store:
  - shelf stable foods
  - refrigerated foods
  - frozen foods
  - leftovers
- 4-H’ers can identify frozen freezer storage containers.
- 4-H’ers can complete the drugstore wrap and label packages properly.

### Recognition

- Smile.
- Thank 4-H’ers for participating in the storage tour of your kitchen.
- Congratulate 4-H’ers on completion of the drugstore wrap.

# Lesson 12. Smart Shopping Tips

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## Objectives

4-H'ers understand principles of economical food buying.

## Before the Meeting

- Copy visual, *The New Food Labels at a Glance*
- Buy 3 frozen pot pies (all the same meat—chicken, turkey, or beef)
  - one national brand
  - one medium priced brand
  - one lowest priced brand
- Make copies of Sensory Evaluation Form for each member (page 77)

## Equipment/Materials

- Paper plates
- Paper
- Pencils
- *The New Food Labels at a Glance Visual*
- 3 frozen pot pies (all the same meat—chicken, turkey, or beef)
  - one national brand
  - one medium priced brand
  - one lowest priced brand

## Time

35 minutes

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Subject Matter	Suggested Activities
<p>Consideration of these factors can help cut food costs.</p>	<p>Bake the pot pies an hour before the meeting begins to save time.</p>
<p><b>Buying in Season</b> The prices of certain foods, such as fruits, vegetables, eggs and meats fluctuate during the year. This happens because supplies go up and down throughout the year. Purchasing food when there is a large supply and prices are lower can be a great money saver.</p> <p><b>Example:</b> When strawberries first come into season, they are in small supply and the cost is high. As the supply increases, the prices go down and grocers often sell them at greatly</p>	<p>Have 4-H'ers remove the top crust from each pie and place them on separate labeled plates. Then, have 4-H'ers remove all pieces of meat from the pies and put on labeled plates. Do the same thing with the vegetables, broth, and any bottom crust.</p> <p><b>Discussion Questions</b></p> <ol style="list-style-type: none"><li>1. Which of the pies had the most meat? vegetables? broth? crust?</li></ol>



## Subject Matter

## Suggested Activities

reduced prices. This is a good time to take advantage of lower prices and serve them often in family meals, or preserve them for later use throughout the year.

### Quantity Buying

Buying in large quantities can be a big money saver, but only if the food can be stored properly and eaten before it spoils.

**Example:** Peaches are on special for \$.49 per pound. You purchase five pounds at the low price, but 1 1/2 pounds go to waste because they spoil before they can be eaten. In reality, the 3 1/2 pounds eaten cost \$.70 per pound, or almost the same as peaches not on sale.

### Individual Serving Sizes

Food packaged in individual serving size packages can be a real convenience for sack lunches and snacks, but individual packing generally costs more. Individually wrapped cheese slices can reduce food waste by preventing the cheese from drying out in the refrigerator. Individually packaged potato chips are convenient for packed lunches, but an unnecessary expense for at-home meals.

### Product Brand

A variety of name brand, store brand and generic products are available at most stores. Compare cost and quality. Store and generic brands are generally cheaper than national brands because of lower marketing, advertising, and distribution costs. The nutritional value of these foods is the same; the major difference is quality. Store and generic products may be less uniform than national brands. For example, national brand green beans will all be about the same size and will all be cut the same lengths. Generic and store brand green beans may be of varying size and length, and a few stems may be left on the beans. In dishes such as casseroles, where the beans aren't as noticeable and appearance isn't a big factor, generic and store brands may be the best buy.

Conduct a sensory evaluation of the pot pies and compare cost.

2. Is cost an indication of quality in this product?

**Cost Per Pound Versus Cost Per Serving**

Determining cost per serving is a more accurate way of controlling food costs than cost per pound or unit. Why? There is a certain amount of waste in some foods. Take meats for instance. If ground beef is \$1.79 per pound and beef ribs are \$1.19 per pound, the ribs may look like the best buy. But you get only 1 to 2 servings per pound of ribs because they contain a lot of bone. A pound of ground beef is all edible and provides four servings per pound. To determine cost per serving, simply divide the number of servings per pound into the cost per pound. ( $\$1.79 \div 4 = 0.45$ ; and  $\$1.19 \div 1.5 = 0.79$ ). The ground beef costs \$.45 per serving, the ribs \$.79 per serving. The ground beef would be the better buy.

**Is Bigger Better**

We often associate larger packages with better prices. As a rule this is true, but it pays to do a little checking before buying. If a different size is on sale, sometimes a smaller size may be the better buy.

**Example:**

10 pounds of flour cost \$1.89; 5 pounds of flour cost \$.99, but the 5-pound bag is on sale for \$.79 per pound. Buying two 5-pound bags of flour would be \$.31 cheaper than one 10 pound bag.

Labels can sometimes be confusing if you don't read them carefully. Study these two labels carefully.

American Cheese 16 slices	American Cheese 8 slices
3/4 ounce each Net weight 12 ounces	1 ounce each Net weight 8 ounces

If you just look at the number of slices, the package of 16 slices looks like the better buy. Take a closer look. The slices in the 16-slice package are only 3/4 ounce each. Although the larger package contains more slices, ounce for ounce, the two packages cost the same. If you purchase the larger package on the basis of slices instead of weight, you will be misled.

**Are you ready for new food labels?**

(Refer to visual New Food Labels on page 53.) Discuss each portion of label. Ask each 4-H'er to point out one section of the label and discuss it.

### Criteria For Measuring Progress

4-H'ers can determine best buys according to:

- quantity
- seasonal availability
- product brand
- cost per serving
- nutrition information on the label

### Recognition

- Smile.
- Congratulate the members on their sensory evaluation.
- Congratulate the members on cost comparison abilities.



# Lesson 13. In-Store Shopping Strategy

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## Objectives

4-H members know in store practices and services that affect buying.

## Before the Meeting

- Collect a variety of store coupons and newspaper grocery ads to use in the activity.

## Equipment/Materials

- Pencils
- Paper
- Store coupons

## Time

35 minutes

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Subject Matter	Suggested Activities
<p><b>Advertised Specials</b></p> <p>Advertised food specials found most commonly in newspapers can offer sizeable cost savings. Commonly purchased items such as meats, fruits and vegetables, dairy products, eggs and soft drinks are often advertised at greatly reduced prices to attract consumers to the store. Some foods may even be advertised at or below the grocer's cost, called a "loss leader" to attract consumers to the store.</p> <p><b>Cents-off Coupons</b></p> <p>Cents-off coupons can help save money when buying food, but they should be used with care. Use them for products you and your family usually eat or for products you want to try. Compare prices before using coupons. Generic or store brands may be cheaper than a highly advertised brand with the value of the coupon subtracted. For example, store brand tuna is \$.69 per can. National brand tuna is \$.89 per can minus \$.15 coupon, or \$.74 per can. The store brand tuna is still the best buy if cost is the only thing considered. But, if your family doesn't like the store brand, or the tuna will be used for a special dish where appearance really counts, the national brand may be worth the added expense.</p>	<p><b>Grocery Store Tour</b></p> <p>Have members divide up into groups of two and look for:</p> <ul style="list-style-type: none"><li>■ advertised specials from the most recent newspaper ad</li><li>■ in store promotions</li><li>■ food displayed on end of aisle and aisle displays</li><li>■ shelf advertising</li><li>■ universal product code on food containers</li><li>■ nutritional information on labels of most foods</li></ul> <p>Give each group 2 food coupons. Let them decide if the product is the best buy with the coupon and explain why.</p> <p><b>Discussion Questions</b></p> <ol style="list-style-type: none"><li>1. Are the advertised specials good food buys?</li><li>2. What in-store promotions are available? How often?</li><li>3. Is food at the end of the aisle and/or in the aisle specially priced?</li></ol>

### **In Store Promotions**

Saving stamps and games are a popular means of attracting consumers to stores and it doesn't cost more to participate. Some stores offer dishes, flatware, etc., at an attractive price with a certain size purchase. Such items may be a bargain if you need them. If you don't need them, they are an added expense.

### **End of the Aisle and Aisle Displays**

Grocers often feature specials along aisles or at the end of aisles. However, check the prices of these items. Just because foods are placed in or at the end of the aisle doesn't assure that they are specially priced. The items displayed in this manner may simply be seasonal items, such as ingredients for holiday baking or summer cookouts that are placed for convenient shopping.

### **Shelf Advertising**

All of the brightly colored price signs on grocery store shelves do not mean that food is at a reduced price. Shop carefully because many of these signs are meant to catch the eye and not advertise a lower price.

### **At the Check-Out Stand**

Listen and watch while your groceries are being tallied at the cash register. Most checkers ring up prices correctly, but they can make mistakes.

### **Universal Product Code**

The Universal Product code system was developed through the joint efforts of grocery distributors. A 10-digit number in the form of a bar code is assigned and placed on food products. Electronic scanners at the check-out counters "read" these numbers and transfer them to a small computer which automatically records the price and item on the cash register and check-out tape. The computer can be programmed to record price changes in items.

4. What types of shelf advertising are used?  
Can you easily tell what is really on sale?  
How?

Locate the universal product code on several packages. Ask the person at the check-out counter the pros and cons of this coding system. See their food items which do not have the code?

## Subject Matter

## Suggested Activities

In addition to recording the price, the computer records the manufacturer of the product and the individual items. This aids grocers in inventory control. In short, the universal product code can benefit both the food retailer and consumer by shortening check-out time, making store operations, warehousing, and inventory more efficient, and eliminating out-of-stock products.

Have members name stores who use the Universal product code. Have them discuss how they utilize some of these shopping strategies while shopping for food.

### Criteria For Measuring Progress

4-H'ers can:

- Evaluate advertised specials and shelf labels to determine best buys.
- Use coupons wisely.
- Evaluate in store promotions.

### Recognition

- Smile.
- Thank 4-H'ers for being attentive in the grocery store.
- Congratulate 4-H'ers on carrying out their group assignments.
- Commend 4-H'ers for doing a good job of learning about store practices and services.
- Recognize 4-H'ers for writing a thank you note to the store manager.

# Lesson 14. Cheese

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## Objectives

4-H members learn to select, buy, prepare and store cheese.

## Before the Meeting

- Buy a variety of cheeses (at least 6) and saltine crackers and cut cheese into cubes or thin slices.

## Equipment/Materials

- Variety of cheeses - at least 6
- Knife
- Saltine Crackers
- Paper plates
- Paper cups or glasses
- Water

## TIME

30 minutes

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### Subject Matter

Cheese is a versatile ingredient in main dishes, salads, sauces, and desserts. There are over 400 varieties of natural cheeses alone and hundreds of other forms of this delightful dairy product.

**Natural cheese** is made by coagulating milk and then separating the curd, or solid part, from the whey or watery part. Some natural cheeses are ripened (aged) to develop their characteristic flavor and texture.

**Pasteurized process cheese** is a blend of fresh and aged natural cheeses that has been melted, pasteurized, and mixed with an emulsifier. The texture is uniform and soft. Pasteurization prevents further ripening; therefore, the texture and flavor remain constant after processing.

Process cheeses are convenient to use in cooked foods because they melt easily and blend well with other foods. They have no rind or waste and are easy to slice. Packaged sliced process cheeses are handy.

**Pasteurized process cheese food**, like process cheese, is a pasteurized blend of cheeses. It contains less cheese and less fat than process cheese, but had added milk or whey solids.

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### Suggested Activities

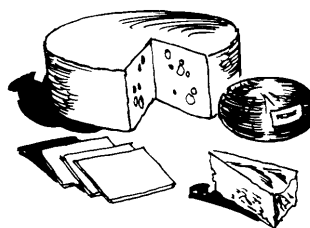
#### Set up a cheese tasting party

Cut natural cheeses into small bite size pieces. Have members taste each cheese, taking a bit of cracker between bites. Have water handy for rinsing the mouth between samples.

Ask 4-H'ers to express their opinions about each cheese.

#### Discussion Questions

1. Did you taste a cheese you didn't think you would like?
2. How could you substitute a new cheese you have tasted in a dish you have used a familiar cheese in?
3. Which types of cheese would go best with:
  - fruits
  - vegetables
  - snacks
  - dips





**Pasteurized process cheese spread** has even more moisture and less milk fat than process cheese food; otherwise the two are alike in composition. Process cheese spread is soft and spreadable at room temperature.

**Cottage cheese** is the curds of pasteurized skim milk to which cream and salt are often added.

**Cream cheese** and cottage cheese are made in a similar manner, but cream cheese contains more fat.

### To cut costs

Cheese and other milk products can replace part of the milk you need. To find the best buys in hard cheeses, compare costs to equal weight of the varieties your family prefers.

- Natural cheeses, particularly those marked aged and sharp, cost more than process cheeses, but are more nutritious.
- Grated cheeses usually cost more than equal amounts of the same cheese in wedges or sticks.
- Cheeses in large boxes and jars and cottage cheese in large cartons cost less per pound than in smaller containers.
- Pasteurized process cheese costs more and has more cheese flavor than pasteurized process cheese spread. Cheese spread, by law, can contain more moisture than process cheese.
- Cheese spread from a pressurized can costs more than cheese spread from a jar.

### Preparation

Cooking cheese successfully depends on brief heating at a low temperature. High temperatures and long cooking make cheese tough and stringy and cause the fat to separate. Also, some of the flavor is lost.

Cheese blends more readily with other ingredients and melts more quickly if it is shredded or diced first.

Casserole dishes containing cheese should be baked at low to moderate temperatures. To prevent cheese toppings from toughening or hardening during baking, cover them with

crumbs or add the cheese just a few minutes before removing the food from the oven.

### To reduce food waste

- Grate cheese that has become dry and freeze for later use in casseroles, omelets, quick breads, etc.

### Storage

Cheese keeps best in the refrigerator. How long it will keep depends on the kind of cheese and the wrapping. Soft cheeses—such as cottage, cream and Neufchatel—are highly perishable. Hard cheeses—such as Cheddar and Swiss—keep much longer than soft cheese.

Leave cheese in its original wrapper, if possible. Cover cut surfaces tightly with waxed paper, foil, or plastic to protect the surface from drying out, or store the cheese in a tightly covered container.

Any surface mold that develops on hard natural cheese should be trimmed off completely before the cheese is used.

Cheese that has dried out and become hard may be grated and stored in a tightly covered jar.

Freezing is not recommended for most cheeses because they become crumbly and mealy when frozen.

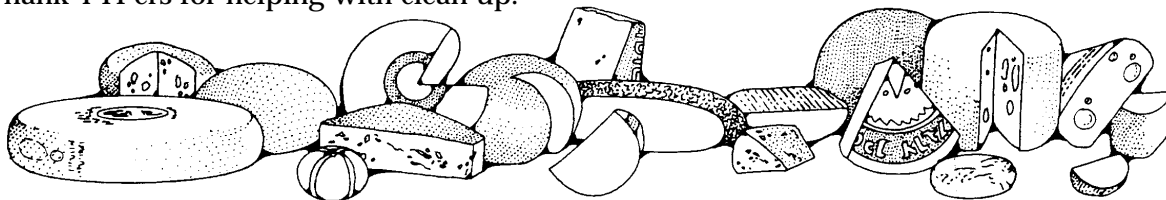
### Criteria For Measuring Progress

4-H'ers can:

- Identify 6 types of cheeses.
- Store cheese properly.
- List 3 ways to cook cheese properly.

### Recognition

- Smile.
- Congratulate 4-H'ers for tasting unfamiliar cheeses.
- Thank 4-H'ers for helping with clean up.



# Lesson 15. Canning to Preserve

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## Objectives

4-H members learn to select and use 2 types of home canning equipment for food preservation.

## Before the Meeting

- Ask agent to provide you with a reference copy of the Extension bulletins L-2216 *Home Canning Fruit and Vegetables*, L-1017 *Good Quality and Safe Home Canned Food* and L-1442 *Home Canning Equipment*.
- Buy fresh fruit or tomatoes.
- Practice using the waterbath canner prior to the meeting so that you are familiar with the waterbath canning procedure. You may want to invite one of the experienced senior 4-H'ers to assist you or give the demonstration.
- Obtain the canning jars and lids needed for the demonstration.

## Equipment/Materials

- L-2216 *Home Canning Fruit and Vegetables*
- L-1017 *Good quality and Safe Home Canned Food*
- L-1442 *Home Canning Equipment*
- Fresh fruit or tomatoes
- Water bath canner
- Canning jars and lids
- Jar lifters
- Paring knife
- Sauce pan
- Large spoon
- Funnel

## Time

60 minutes

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### Subject Matter

Food preservation allows us to keep foods grown or produced in times of abundance for use later and even to ship to other parts of the world.

Napoleon can be credited with providing the incentive for the development of a revolutionary method of food preservation. He had trouble feeding soldiers in the late 1790s because the food was of poor quality and spoiled. He offered a reward of money and fame to anyone who could invent a useful method of food preservation. After ten years of work, Nicholas Appert received the reward for developing food processing in sealed heated containers.

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### Suggested Activities

Assist 4-H'ers in canning a fruit or tomatoes. See instructions in L-2216 *Home Canning Fruit and Vegetables*.

Show the water bath equipment to 4-H members. Demonstrate the pressure canner equipment as you tell its use. Demonstrate showing jars, lids, other equipment and their use.

### Discussion Questions

1. Why is it important to use standard home canning jars and lids? See L-1442 *Home Canning Equipment*.

## Subject Matter

The process has been greatly improved and is practiced commercially and in the home.

In canning, foods are preserved because bacteria are destroyed by heat and other bacteria are kept out because the product is stored in a sealed jar or can. All bacteria are not killed in canning, only those that are likely to cause spoilage under ordinary storage conditions.

The bacteria of greatest concern in canned food is *Clostridium botulinum*. It can form a spore which is very resistant to heat and chemicals. If the spores are not destroyed during the canning process they produce a toxin that is the most deadly to man.

There are two recommended methods of canning: water bath and pressure. The acid content of food is the main factor in determining which of these two methods should be used.

Fruits, pickled vegetables and tomatoes contain enough acid to be processed in boiling water to destroy botulinum spores. Temperatures well above the boiling point of water (240° F or above) are required to destroy *botulinum* spores in low acid foods such as meats, fish, poultry, and all vegetables except tomatoes. The only way to obtain a high enough temperature is in a pressure canner.

### Criteria For Measuring Progress

4-H'ers can:

- Explain the two types of canning and the foods which are processed by each method.
- Process foods in a water bath canner.
- Select proper home canning equipment.

### Recognition

- Smile.
- Congratulate 4-H'ers on successful canning.
- Thank them for cleaning up kitchen.
- Compliment them on being able to answer discussion questions.

## Suggested Activities

2. Why are fruits and tomatoes canned in a water bath canner and not a pressure canner?
3. What is the bacteria of most concern in canning and is it destroyed?

Describe food safety clues for use of home canned foods.

- Don't use any canning jars showing danger signs.
- If a family member shows any signs of *Clostridium botulinum* seek medical help immediately.



# Lesson 16. Bread, Cereal, Rice and Pasta

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## Objectives

4-H members can select, buy, and prepare breads, cereals and grain products.

## Before the Meeting

- Assemble the equipment needed to prepare the spaghetti.
- Assemble/purchase the ingredients needed to prepare the Rotini Medley Salad.

## Equipment/Materials

- 6-quart sauce pan or spaghetti cooker
- Colander
- Large skillet
- Serving dish
- Plates
- Forks

### Ingredients for Rotini Medley Salad:

- 1/2 cup thinly sliced carrots
- 1/2 cup chopped green onion
- 1/2 cup chopped green pepper
- 1 clove garlic
- 8 ounces Rotini Pasta
- 1/4 cup vegetable oil
- 1/2 cup grated parmesan cheese
- salt and pepper



## Time

35 minutes

## Subject Matter

## Suggested Activities

Grain products are the primary source for sodium, iron and manganese according to the FDA Total Diet Study (1982-1989), and they are also rich in complex carbohydrates. Most breads, cereals, pasta and rice products are well liked, inexpensive, and convenient. Some cost only pennies per serving!

### Selection

The main groupings are:

**Flours** which are made from many grains with wheat being the most common. White flour is made from the inner part of the grain. Whole wheat flour is made from all parts of the grain and provides more fiber in the diet. Wheat is milled into flours for special uses like bread flour and cake flour.

**Breads and bakery products** are prepared from flours. Breads, rolls, muffins, buns and sweet dough breads are available ready to eat, partially or fully baked, and as mixes.

**Macaroni and pasta** are prepared from a special wheat and come in many shapes, sizes and even flavors and colors. They are a versatile part of many main dishes, casseroles, salads and side dishes.

**Cereals** are made from many grains and can be flaked, puffed, rolled or shredded. Ready to eat cereals are convenient, but generally cost more than cereals that must be cooked.

**Rice** can be purchased precooked, converted, or parboiled. Converted or parboiled rice is processed by steam or hot water to improve the nutritional value and improve keeping quality. White, brown and wild rice can be purchased separately or in a variety of seasoned mixes.

### To Cut Costs

- Compare prices for equal weights of bread to find the better buy. A large loaf of bread does not always contain more food value than a small loaf.
- Consider the cost of convenience. Pre-cooked rice takes less time to cook and costs more than regular rice. Instant rice costs over twice as much as regular. Rice mixes, with seasonings added, are much

### Prepare Rotini Medley Salad

Divide 4-H'ers into two groups. Have group 1 cook the pasta. Follow package directions for cooking the pasta, adding 1 tablespoon of vegetable oil to the water.

Have group 2 sauté the garlic clove in the remaining 3 tablespoons of oil for one minute. Remove the garlic clove and sauté the vegetables until tender, but crisp.

Drain the pasta when cooking is complete and add the pasta and parmesan cheese to the vegetables in the skillet. Toss until all ingredients are blended. Salt and pepper lightly. Serve while hot.

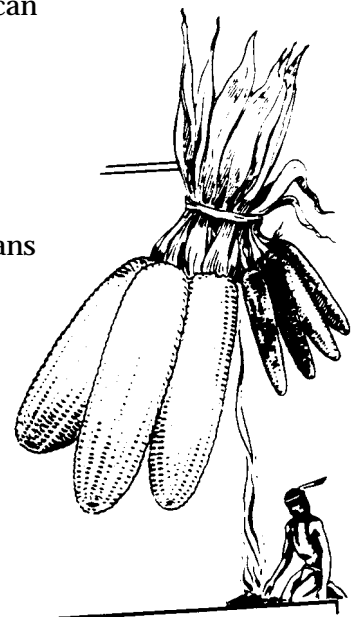
### Discussion Questions

1. Why is the oil added to the water in cooking pasta?
2. How can you tell when pasta is done?
3. Why do you undercook pasta that will be put into casseroles or other cooked dishes.

What are some other uses of pastas in foods?

Describe how several ethnic groups utilize pasta, breads, etc.

- Polish
- Mexican-American
- African-American
- Italians
- Czechs
- Irish
- Indians
- American Indians
- Others



more expensive than regular rice you season at home.

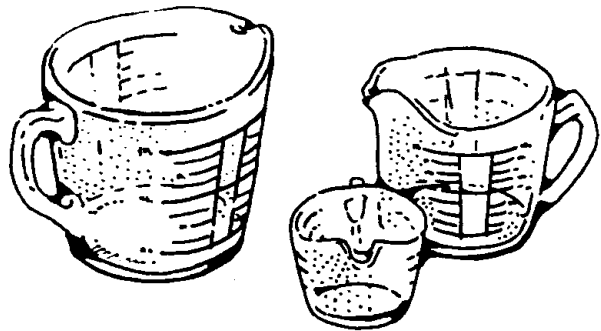
- Consider that ready-to-serve cereals and instant hot cereals packaged as individual servings may cost two to three times as much per ounce as the same cereal in large boxes.
- Cook cereals yourself instead of buying ready-to-eat cereals.
- Purchase day-old bread and baked goods.
- Prepare more baked goods at home. Homemade baked goods are often cheaper. Compare the cost of the ingredients for your favorite recipes with the price of equal amounts of similar bakery products that your family enjoys. Then decide if it is worthwhile to make your own.

### Preparation

- Measure flour carefully when preparing quick breads. Exact measurement is not as important in preparing yeast breads because more flour can be added during kneading.
- Cook rice in a container with a tight fitting lid.
- Cook macaroni and pasta in a large amount of water to allow for expansion. Add a tablespoon of oil to the water to prevent sticking and stir occasionally. Cook until tender, yet firm and drain in a colander. Do not rinse the pasta unless it will be used in a cold salad. Undercook pasta that will be added to casseroles so that it won't be overcooked in the finished dish.

### Storage

- Store flours and cereals at room temperature in a tightly covered container to keep out dust, moisture and insects.
- Store macaroni and pasta in a covered container or the original package and use within a year.



### Criteria For Measuring Progress

4-H'ers can:

- Identify the basic types of grain products.
- Cook pasta properly.

### Recognition

- Smile.
- Congratulate 4-H'ers on preparing pasta properly.
- Thank them for working together as a group.



# Lesson 17. Safe Food Handling Practices

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## Objectives

4-H members list safe food handling practices, be alert to unsafe food handling practices of others and explain how foodborne bacteria can be controlled through proper food selection, handling and cooking.

## Before the Meeting

- Make 9 copies of script “Who Caused the Foodborne Illness Outbreak at Annie’s House”? and 1 copy “Annie’s Seven Food Safety Tips”
- Have county agent order *The Danger Zone*, Extension VHS-645 and accompanying *The Danger Zone Teacher’s Guide—A Food Safety Program for Teens* use discussion guide (pages 3 and 4)
- Get a copy of a real or plastic chicken.

## Equipment/Materials

- 1 chicken – plastic or real
- 1 head lettuce –wilted or otherwise
- 9 copies of script “Who Caused the Foodborne Illness Outbreak at Annie’s House”?
- 1 copy “Annie’s Seven Food Safety Tips”
- Optional activity: have county agent order the “*The Danger Zone*, Extension VHS 645 and accompanying *The Danger Zone Teacher’s Guide—A Food Safety Program for Teens*,” use discussion guide (pages 3 and 4).

## Time

35 minutes

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Subject Matter	Suggested Activities
Foodborne illness bacteria can be controlled through proper selection, handling, and cooking of food.	Review the bacteria described in lesson 6 (illness and spoilage) and how to control them in this chapter.
<b>To Control <i>Salmonella</i></b>	Review briefly the types of foodborne bacteria, <i>Salmonella</i> , <i>Staphylococcus</i> , <i>Clostridium perfringens</i> , and <i>Clostridium botulinum</i> , and how to control them in this lesson.
<ul style="list-style-type: none"><li>■ Avoid contamination of cooked foods with raw foods.</li><li>■ Wash cutting board thoroughly after each use.</li><li>■ Wash hands carefully before handling food.</li><li>■ Wash raw foods well.</li></ul>	Tell 4-H’ers that they are going to witness a courtroom drama. Annie was accused of making her entire class sick at her party. The county prosecuting attorney has put her on trial for this deed. Provide nine 4-H members with script of “Who Caused the Foodborne Illness

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## Subject Matter

## Suggested Activities

- Clean cutting board well before and after cutting up poultry or meat.
- Heat foods to at least 160° F. before serving.
- Refrigerate or freeze leftovers immediately after a meal.
- Keep pet feeding dishes and toys out of the kitchen.

### To Control *Staphylococcus aureus*

- Practice good personal hygiene
- Avoid handling food if you have open cuts, boils, or colds.
- Keep meat and foods containing egg and milk in the refrigerator.
- Avoid contamination of cooked foods through hands, knives, and cutting boards.
- Never allow foods to stand at room temperature for more than 2 hours.

### To Control *Clostridium perfringens*

- Keep hot foods hot (above 140° F.) and cold foods cold (below 40° F.)
- Thoroughly reheat leftover cooked foods.
- Keep cold cuts and cold sliced meats cold and serve cold.

### To Control *Clostridium botulinum*

- Use a proper pressure canner for all meats, fish and vegetables.
- Follow a reliable, up-to-date home canning instruction booklet.
- Inspect all food containers before opening or serving. Discard bulging cans or those with leaky seals.
- Boil all home canned foods for 10 minutes before serving. Never taste canned low-acid foods directly from the jar.

These simple tips will help you to prevent foodborne illness in your home.

Outbreak at Annie's House?" Have other 4-H members act as jurors.

Hand out a copy of Annie's Food Safety Tips to use. Review the Key Points. Tell jurors to keep their tips handy to see if Annie is guilty or innocent based on food safety rules. Have 4-H'ers act out the play.

At the end of play, ask jurors for verdict. Is Annie innocent or guilty? If she is not guilty, then who was guilty of making students in Annie's class ill and how?

This may be a tough question for the jury to decide. Even though food was served at Annie's house, was she really the cause? She did prepare hamburgers and hot dogs but she kept the meat refrigerated in a covered container until just before cooking. Are Bonnie, Charlie, Kenny or Roscoe suspect?

Let's see, how did Bonnie break the two hour rule? (potato salad left out on counter all night). Could the cat stepping in it be a factor? (certainly, because animals carry disease). Could Charlie and Kenny be guilty, too? Charlie left his deviled eggs in the Danger Zone on the patio more than two hours before Kenny picked them up to deliver to Annie's house. To make matters worse, Kenny left the deviled eggs in the unrefrigerated trunk while he played softball. Roscoe may not be innocent either. In helping Annie cook the hamburgers and hot dogs on the grill, he put the cooked hamburgers back in same container as the raw meat. Could he have contaminated the cooked meat with juices of raw meat still in the container? (cross-contamination).

## Subject Matter

## Suggested Activities

### Food Buying

- Shop for groceries after all errands have been run.
- Make sure the food you select is in good condition.
- Under no circumstances buy swollen or leaking canned foods.
- Select refrigerated and frozen foods just before checking out.

Refer to Annie's Food Safety Tips. Ask different 4-H'ers to read the tips.

### Food Handling and Storage

- Refrigerate meat, dairy products and prepared foods immediately.
- Store canned foods in a dark, cool place for no longer than 1 year.
- Use perishable foods within a short time.
- Keep frozen foods stored at 0° F. or below.

How did the foodborne outbreak at Annie's house demonstrate this?

### Food Preparation

- Wash raw fruits and vegetables before using.
- Reheat leftovers thoroughly before serving again.
- Cook pork and poultry until well done. Stuff poultry just before placing in oven.
- Do not allow prepared food to stand at room temperature for more than two hours.
- Avoid contamination of cooked foods through the use of cutting boards or other utensils that may have been in contact with raw foods.

What should Roscoe have done to prevent cross-contamination?

Keep foods out of the Danger Zone (the range of temperature at which most bacteria multiply rapidly—between 40° and 140° F.)

Always remember to keep hot foods hot and cold foods cold!

Ask members to interview the county agent about the Food Safe program of the Texas Agricultural Extension Service.

### Criteria For Measuring Progress

4-H'ers can:

- Name two ways to prevent each of the four most common foodborne illness bacteria.
- Name two things to consider in buying foods to prevent foodborne illness.
- Name two food handling and storage practices that help prevent foodborne illness.
- Name two food preparation practices that help prevent foodborne illness.



### Recognition

- Smile.
- Thank members for participating in the discussion.
- Congratulate members on remembering names of foodborne illness bacteria.



# WHO CAUSED THE FOODBORNE ILLNESS OUTBREAK AT ANNIE'S HOUSE ?

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*A play in which you may recognize some friends of yours, and some enemies, too.*

## **CAST OF CHARACTERS (In order of appearance):**

Stanley "Stub" Bourne, prosecuting attorney	Kenny Williams, witness
Bonnie Marino, witness	Miss Temple, teacher, witness
Ivan Objection, defense attorney	Annie Brant, the defendant
The Judge	Roscoe Royce, witness
Charlie Shaw, witness	Members of the jury

As we enter the courtroom, we hear the prosecuting attorney's opening remarks:

**STUB:** (with flair) Ladies and gentlemen of the jury, we intend to prove that Annie Brant did willfully and openly give a party that made the entire class ill; that on the date in question, this same Annie Brant did serve food that caused her guests severe pain and discomfort. I call my first witness. Bonnie Marino.

**BONNIE:** (takes the witness stand)

**STUB:** Do you swear to tell the whole truth and nothing but?

**BONNIE:** Yes, of course, I'll tell the truth! It's important to tell the truth. But I'm sure Annie wouldn't deliberately hurt anyone.

**STUB:** Just limit your answers to the questions asked, Miss Marino. On the day in question, did you attend a party at the home of Miss Annie Brant?

**BONNIE:** I sure did. (aside to the jury) Actually, I had a great time. It was a fun party!

**STUB:** (exasperated) Just answer the questions, Miss Marino. Now tell the court in your own words exactly what happened at that party.

**BONNIE:** As I recall, Annie offered her house for the class party. She said she would provide all of the meat, hamburgers and hot dogs, if we, the committee, would bring everything else. "Gladly," I said. The committee is large, so food wasn't a problem, but a place to have the party was. Anyway, maybe if I had gotten the meat myself, this foodborne illness outbreak would never have happened. Poor Annie!

**IVAN:** I object! Witness is prejudicing the jury.

**JUDGE:** Sustained. Jury will disregard that last remark. Miss Marino, we'll have no more of those kinds of remarks. Just give the facts.

**BONNIE:** I'm sorry. I'll try to be brief. Well, anyway, I made the potato salad the night before the party. Everybody likes my potato salad. I put gobs of mayonnaise and lots of hard cooked eggs in it. I make this really neat design on the top with sliced eggs and parsley. When I'm finished, it looks like a great big smiling face.

*Who Caused the Foodborne Illness Outbreak at Annie's House?*

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IVAN:           Objection!

JUDGE:         Sustained. Just get to the point, Miss Marino.

BONNIE:       (indignantly) That is the point! My salad is very good. It would never have made anyone sick. I left it out on the counter all night so that I wouldn't forget it. My family kept trying to snatch a bite all evening long. Even the cat tried to get some! But, after I fixed it, nobody could even tell where she put her little foot. All I know is that after the party, everyone was ready to make out their wills. That's how sick Annie's hamburgers made us. I feel so bad about it. But ask Charlie, if you don't believe me.

STUB:          Thank you, Bonnie. You may step down.

BONNIE:       (leaves the witness chair)

STUB:          I now call Charlie Shaw.

CHARLIE:       (walks up and sits in witness chair)

STUB:          Would you please tell us what you observed at the party?

CHARLIE:       I don't want anyone to be mad at me. I like Annie, and I like Bonnie, and I like everybody. I wanted to do something nice for the party. Bonnie told me I could make some deviled eggs, so I boiled the eggs, cut them in half and mixed mayonnaise and mustard with the yolks. I even crumbled bacon on top. I left them outside on the table on the patio so that Kenny could just pick them up on his way to Annie's house. That's all I remember. Maybe Kenny remembers something.

STUB:          Thank you, Charlie. You may step down.

CHARLIE:       (leaves witness chair)

STUB:          I call Kenny Williams as my next witness.

KENNY:         (comes up to the witness chair)

STUB:          Tell us in your own words what happened on the night in question.

KENNY:         I don't know what happened. All I know is I was so sick I thought, "This is it, Kenny, old boy, and you are so young."

IVAN:           Objection!

JUDGE:         Sustained. Just tell us what you remember, Mr. Williams.

KENNY:         Sure, Judge, sure. As Charlie said, I picked up the stuff by noon and put it into the trunk of my car. Then I went to my softball game. I play on a championship softball team. We're number one in our league.

IVAN:           Objection!

JUDGE:         Sustained. We don't need all the details, Mr. Williams. Just tell us what you remember about the party.

KENNY:         Well, that's it. The next thing I know Miss Temple, our teacher, called and told my mother that the whole class was suffering from foodborne illness.

STUB:          That will be all, Mr. Williams.

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*Who Caused the Foodborne Illness Outbreak at Annie's House?*

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KENNY: (leaves witness stand)

STUB: Miss Temple, would you please take the stand?

MISS T: (comes up to the witness stand and sits down)

STUB: Tell us what you remember, Miss Temple.

MISS T: I feel really sorry about what happened, but it is not right to place the blame on poor Annie until we know exactly what happened.

STUB: Exactly what did happen?

MISS T: Oh, I don't know. By the time I got to the party, all the eating was over. I just helped myself to the leftovers. I had a hamburger, a couple bites of salad, that's all that was left, and the last of the deviled eggs. A few hours later, I was sick.

STUB: That's all Miss Temple. You may step down.  
(to the judge) I have no further witnesses, Your Honor. The Prosecution rests. (He sits down.)

IVAN: (comes up to the witness chair) The defense has only one witness, Your Honor. I call Miss Annie Brant.

ANNIE: (comes up and sits in witness chair)

IVAN: Annie, tell us your story.

ANNIE: Nothing happened, I promise you. I bought the meat, the hamburgers and the hot dogs, and kept them in the refrigerator until the second we cooked them. I even had the meat in a plastic container with a lid. As soon as I put the meat on the grill, the doorbell rang. I asked Roscoe if he would take the meat off the grill when it was done. I did nothing wrong.

IVAN: Now, now, Annie. I'm sure the jury will see that you've been a victim. You may step down. (Turning toward the judge.) I will need to call another witness, Your Honor. I call Mr. Roscoe Royce to the stand.

ROSCOE: (comes up and sits in the witness chair)

IVAN: Mr. Royce, Annie Brant has testified that you cooked the hotdogs and hamburgers. Is this true?

ROSCOE: I didn't cook the meat, Your Honor. Annie did. All I did was take the hamburgers and hot dogs off the grill when they were done. I put them back into the same container Annie had brought them on before they cooked. That's all that happened. And now this!

IVAN: Thank you, Mr. Royce. I have no further questions.

ROSCOE: (leaves the witness chair)

IVAN: (to the judge) The defense rests. (He sits down.)

JUDGE: (addressing the jury) I ask you to take all of the facts into consideration and to render a verdict. Is Annie Brant guilty or not guilty of the charge of willfully causing a foodborne illness outbreak? You must decide.

THE END

## **ANNIE'S SEVEN FOOD SAFETY TIPS**

1. Don't buy foods in damaged containers.
2. Keep cold foods cold.
3. Keep food clean.
4. Don't spread bacteria from raw meat and poultry to other food.
5. Keep hot foods hot.
6. Don't leave food at room temperature longer than two hours.
7. Cool leftovers rapidly in small, shallow containers.



# Lesson 18. Vegetables

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## Objectives

4-H members learn to select, buy, prepare, and store vegetables.

## Before the Meeting

- Ask the agent to supply you with one copy of L-1323 *Eat Well for Less from the Fruit and Vegetable Group*.
- Buy 1 bunch fresh broccoli and bread crumbs or make your own bread crumbs.
- Make copies of Sensory Evaluation Form for each member (page 77).

## Equipment/Materials

- L-1323 *Eat Well for Less from the Fruit and Vegetable Group*
- 1 bunch fresh broccoli
- 1/2 cup seasoned bread crumbs
- 2 tablespoons butter or margarine
- paper plates
- forks
- pencils
- 3 sauce pans (2 with tight fitting lids)
- spoons

## Time

35 minutes

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Subject Matter	Suggested Activities
<p>Vegetables are an often neglected part of America's diets. They offer variety in color and flavor in meal planning as well as nutrients, complex carbohydrates and fiber.</p> <p>Select fresh vegetables that are firm, crisp and have good color, and are free from decay and bruises.</p>	<p>Wash and trim fresh broccoli. If fresh broccoli is not available, substitute frozen broccoli.</p> <ol style="list-style-type: none"><li>1. Cook the bunch of broccoli in a small amount of water uncovered for 5 minutes. Cover and cook until tender yet firm. Remove 1/2-cup samples.</li><li>2. Cook one 1/2-cup sample in a small amount of water covered for 20 minutes.</li><li>3. Cook the other 1/2-cup sample in a small amount of water covered for 20 minutes.</li><li>4. Conduct a sensory evaluation of the samples.</li></ol>

### To Cut Costs

- Be ready to substitute one vegetable for another if it means a savings and your family will accept it.

## Subject Matter

- Check different forms of fresh, canned, dried and frozen to see which is the best buy.
- Limit purchases of vegetables at bargain prices to amounts that can be used while they are still good.
- Take advantage of seasonal abundance. Foods in season will be at their peak in quality and often are lower in price.
- Watch for specials on canned and frozen products your family likes. Stock up on good buys if you can store them properly.
- Try lower priced brands and generics. You may like them as well as more expensive items. Chain store and less advertised brands and generics may be similar in quality to widely known products, yet cost less.
- Check for grades on canned products. Grades are based on color, texture, flavor, shape, uniformity of size, and freedom from defects. Try the less expensive form when shape, uniformity in size, or color are not important. For example, if a can of fancy asparagus spears cost \$1.75, the same size can and brand of cut asparagus may cost only \$1.10. Not all graded vegetables and fruits have the grade on the label. Frozen asparagus maybe around \$2.25 for 10-ounce package.

Season and prepare sauces for frozen, boil-in-the-bag, and vegetables yourself if you have time. Frozen vegetables with sauce or butter added are usually expensive compared to plain frozen vegetables.

### Preparation

Care must be taken in cooking vegetables to prevent loss of nutrients. To reduce nutrient loss:

- Use a small amount of cooking water or liquid.
- Do not overcook.
- Cover most vegetables while cooking so you can use a small amount of liquid and still cook the vegetables quickly. Green vegetables such as broccoli, Brussels

## Suggested Activities

5. Season the remaining broccoli. Melt the butter or margarine, stir in the bread crumbs. Sprinkle over the large portion of broccoli. Serve.

### Discussion Questions

1. Which sample has the most appealing appearance and color?
2. What effect did cooking with or without a lid have on the color and appearance?
3. What effect does cooking time have on:
  - appearance?
  - texture?
  - flavor?
  - aroma?
4. Did the seasoned bread crumbs and butter improve the flavor and appearance of the broccoli?



sprouts, and cabbage should be cooked for a few minutes uncovered. This allows acids in the vegetables to vaporize into the air. If a lid is used, the acids drip off the lid and turns the vegetables a dull olive green.

### Storage

Even under ideal storage conditions most fresh vegetables retain top quality only for a few days. To keep vegetables crisp and fresh:

- Store in covered containers or plastic bags in the refrigerator.
- Drain lettuce, celery and other leafy vegetables after washing because too much moisture hastens decay.
- Store mature onions, potatoes, sweet potatoes and winter squash in a cool, dry, well-ventilated place.
- Always sort vegetables before storing. Discard or use at once any bruised or soft vegetables. Do not store them with sound, firm vegetables.
- Store mature onions and potatoes in dark, dry place with good ventilation.

### Criteria For Measuring Progress

4-H'ers can:

- Select quality vegetables.
- Select "best buys" in vegetables.
- Cook green vegetables properly.

### Recognition

- Smile.
- Encourage 4-H'ers to assist their families in cooking vegetables properly.
- Commend 4-H'ers on a good sensory evaluation.
- Thank 4-H'ers for assisting with cooking the broccoli.

# SENSORY EVALUATION FORM

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Sensory evaluation is an objective way to evaluate foods. You will need white paper plates, forks and masking tape. Label the plates. Ask friends, family members or members of your project group or club to participate in your evaluation. Place a small amount of each sample on the appropriately labeled plate. Ask each person to rate each sample on a scale of 1 to 5.

- 5 very desirable
- 4 desirable
- 3 acceptable
- 2 slightly undesirable
- 1 undesirable

The following format can be used for evaluating products:

<b>Characteristics</b>	<b>Sample W</b>	<b>Sample X</b>	<b>Sample Y</b>	<b>Sample Z</b>
Color				
Odor				
Appearance				
Flavor				
Texture				

Each group participant should evaluate each sample of food. Individual ratings should be averaged to obtain a group rating.

# REFERENCES

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## Available from County Extension Agent

- L-1017 *Good Quality and Safer Home Canned Food*
- B-1477 *Formula The Family Fitness Formula*
- L-1349 *Let's Look at Lightweight Beef*
- B-1557 *Texas Lean Beef in a Hurry*
- L-1322 *Eat Well for Less from the Milk Group*
- L-1324 *Eat Well for Less From the Bread and Cereal Group*
- L-1875 *Nutrient Needs at a Glance*
- L-1741 *Food Protein Cost*
- L-1798 *Chicken Cut-up: Family Style*
- L-2217 *Home Canning Vegetables*
- D-1021 *Food Safety Desk Reference*
- L-1540 *Bacterial Food Poisoning*
- L-1277 *U.S. Dietary Guidelines for Americans*
- D-1284 *Special Food Needs Dietary Guide*
- Unnumbered *Lighten Up—An Adolescent Weight Management Curriculum*

## Other References

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