

Colorado  
State  
University

Extension

MJ1041  
Member's Manual



**4-H Food  
Preservation: Freezing**

# Contents

	Page
<b>Notes to the Project Helper</b>	<b>2</b>
<b>Using Experiential Learning &amp; Life Skills</b>	<b>3</b>
<b>My Plans</b>	<b>4</b>
<b>Exploring Choose MyPlate</b>	<b>5</b>
<b>Choose MyPlate Worksheet</b>	<b>7</b>
<b>Reading Food Labels</b>	<b>9</b>
<b>How Much Should You Eat</b>	<b>10</b>
<b>Let's Plan a Menu</b>	<b>11</b>
<b>Types of Food Preservation</b>	<b>13</b>
<b>Kitchen and Food Safety Basics</b>	<b>14</b>
<b>Basic Food Preservation Equipment</b>	<b>16</b>
<b>Freezing Foods</b>	<b>18</b>
<b>Getting Ready to Freeze - General Information</b>	<b>18</b>
<b>Packing/Labeling/Storage</b>	<b>23</b>
<b>Activities</b>	<b>25</b>
<b>Let's Freeze Fruit</b>	<b>25</b>
<b>Let's Freeze Vegetables</b>	<b>27</b>
<b>Let's Freeze Convenience Foods</b>	<b>28</b>
<b>Other Freezing Activities</b>	<b>29</b>
<b>Going Further with Freezing</b>	<b>30</b>
<b>Show What You Have Learned</b>	<b>31</b>
<b>Reflections on Freezing</b>	<b>32</b>

# Notes to Project Helper

This activity guide is for youth who want to learn about home food preservation. They can't do it without your help. You play a key role in helping them learn the basic information skills and safety behind food preservation. With your help they will set goals, find resources and evaluate their own progress as they complete this manual.

## Your Responsibilities

- Become familiar with the material in this book.
- Assist youth in selecting and completing food preservation projects appropriate for their skills.
- Guide youth through thinking about why something happens or why it doesn't.
- Encourage youth to complete difficult tasks to expand their skills.
- Help youth learn about their strengths and weaknesses.
- Help youth evaluate their completed activities for quality. Questions located at the end of each activity will help youth think through the steps of the project and how to apply their new skills in their everyday lives.
- Be an example with kitchen and food safety rules.

## The Home Food Preservation Series

There are four manuals for youth in the *Home Food Preservation* series: *Freezing* for ages 8-18, *Drying* for ages 8-18, *Boiling Water Canning* for ages 8-18 and *Pressure Canning* for ages 14-18. The manuals may be used by anyone in these age groups regardless of their prior knowledge of home food preservation. Each manual includes an achievement program to help youth identify their goals and keep track of their accomplishments.

At the beginning of each manual you will find a list of objectives for the project. Each activity will include a short lesson followed by hands on activities and questions for further learning.

**These manuals have been written using USDA food preservation guidelines. When preserving food at home, be sure to always follow current USDA canning recipes and guidelines. Contact your local Extension Office for a list of these resources.**

## Resources

CSU Extension Fact Sheet 9.330 and 9.331  
Freezing Fruits and Vegetables  
So Easy to Preserve, University of Georgia  
2011 or most current Ball Blue Book

## Websites

<http://www.ext.colostate.edu/pubs/pubs.html#nutrition>

[http://nchfp.uga.edu/publications/publications\\_usda.html](http://nchfp.uga.edu/publications/publications_usda.html)

<http://www.freshpreserving.com>

<http://www.uga.edu/nchfp>.

## Using Experiential Learning & Life Skills

Experiential learning is the process of “Do, Reflect, Apply.” This process is used as an inquiry-based approach to learning. Rather than providing information to the participants they experience, share, process, generalize and apply what they are learning.

**Do:** Experience the activity, perform, do it. This could be a group activity or experience. It involves doing, it may be unfamiliar and it pushes the learner to a new level.

**Reflect:** Share reactions, observations. The learners talk about their experiences while doing the activity. They share their reactions and observations and freely discuss their feelings.

**Apply:** Generalize to connect the experience to real-world examples. Identify general trends and what are some real life examples of when they could use what they have learned.

**Apply:** Apply what was learned to a similar or different situation or practice. Discuss how new learning can be applied to other situations.

The Iowa State Life Skills Model helps identify the life skills that youth attain through the experiential learning process.

The Life Skills used in the manual include:

### Head

- Wise Use of Resources
- Planning/Organizing
- Goal Setting
- Critical Thinking

### Heart

- Communication

### Hands

- Marketable Skills
- Self-Motivation

### Health

- Healthy Lifestyle Choices
- Disease Prevention

# My Plans

This page is intended to help you plan how to finish this manual.

- Select your Helper and write down contact information
- Set goals for each year and write them in your e-record story
- Complete at least four activities each year
- Complete a presentation or demonstration each year

**Project Helper:** \_\_\_\_\_

**Contact Information:** \_\_\_\_\_

## Achievement Program

Do at least four activities located on pages 25-31 in the manual. You can also make up your own activities. Ask your project helper to initial each activity after you've completed it.

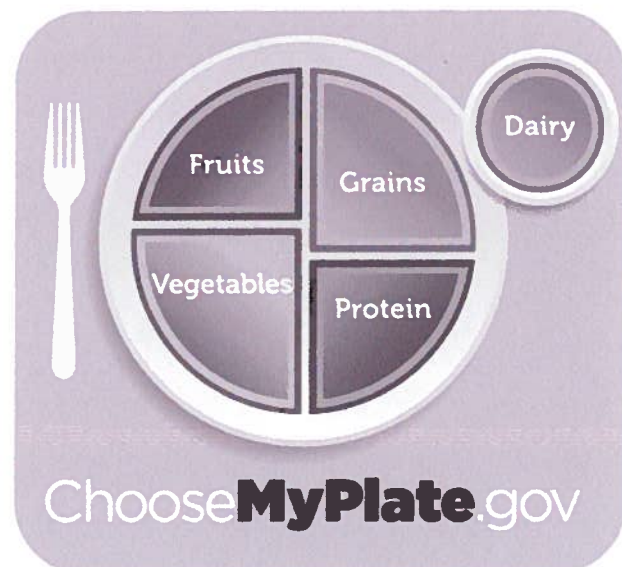
Selected Activities		
Activities	Date Completed	Helper's Initials

# Exploring *Choose MyPlate*

It is important to save your bounty of foods from your garden or local area to enjoy throughout the year. Preserving food yourself means having an abundant supply of a variety of foods when the fresh products are not readily available. Unless food is preserved in some manner, it begins to spoil soon after it is harvested.

It is important to learn about the nutrients that your foods contain in order to choose the best choices for a healthy eating plan. There are many foods to choose from, but some of them are better choices than others. Making food choices for a healthy lifestyle can be as simple as using these 10 tips. Use these ideas to balance your calories, to choose foods to eat more often, and to cut back on foods to eat less often.

1. Balance calories. Find out how many calories you need for a day as a first step in managing your weight. Go to [www.ChooseMyPlate.gov](http://www.ChooseMyPlate.gov) to find your calorie level.
2. Enjoy your food, but eat less. Take the time to fully enjoy your food as you eat it. Eating too fast or when your attention is elsewhere may lead to eating too many calories.
3. Avoid oversized portions. Use a smaller plate, bowl, and glass. Portion out foods before you eat.
4. Foods to eat more often. Eat more vegetables, fruits, whole grains, and fat-free or 1% milk and dairy products. Make these foods the basis for meals and snacks.
5. Make half your plate fruits and vegetables. Choose red, orange, and dark-green vegetables like tomatoes, sweet potatoes, and broccoli, along with other vegetables for your meals. Add fruit to meals as part of the main meal or side dishes or as dessert.
6. Switch to fat-free or low-fat (1%) milk. They have the same amount of calcium and other essential nutrients as whole milk, but fewer calories and less saturated fat.
7. Make half your grains whole grains. To eat more whole grains, substitute a whole-grain product for a refined product – such as eating whole wheat bread instead of white bread or brown rice instead of white rice.
8. Foods to eat less often. Cut back on foods high in solid fats, added sugars, and salt. They include cakes, cookies, ice cream, candies, sweetened drinks, pizza, and fatty meats like ribs, sausages, bacon, and hot dogs. Use these foods as occasional treats, not everyday foods.
9. Compare sodium in foods. Use the Nutrition Facts label to choose lower sodium versions of foods like soup, bread, and frozen meals. Select canned foods labeled “low sodium,” “reduced sodium,” or “no salt added.”
10. Drink water instead of sugary drinks. Cut calories by drinking water or unsweetened beverages. Soda, energy drinks, and sports drinks are a major source of added sugar, and calories, in American diets.



A healthy meal starts with more vegetables and fruits and smaller portions of protein and grains. One of the benefits of preservation is that you can enjoy your fruits and vegetables all throughout the year. Think about how you can adjust the portions on your plate to get more of what you need without too many calories. And don't forget the dairy – make it the beverage with your meal or add fat-free or low-fat dairy products to your plate.

- **Grains:** Grains are used to make bread, cereal, rice and pasta. These foods are made from wheat, rye, oats and rice. Whole grains are higher in fiber than others. Look for whole wheat or other whole grains on the ingredient label. Half of the foods you eat from the grains group should be whole grains. Eat at least 3 ounces of whole-grain cereals, breads, crackers, rice, or pasta every day. Foods from the grains group have carbohydrates. Carbohydrates are fuel our bodies need.
- **Vegetables:** Vegetables provide several different vitamins and minerals your body needs. Vegetables can be dried or canned, frozen or fresh. Vitamin A is found in dark green vegetables such as broccoli and spinach; and dark yellow and orange vegetables such as carrots and sweet potatoes. Vitamin A keeps the cells in our body healthy to protect us against infections. Vitamin A also aids the growth of healthy skin, bones, and teeth. We should eat a variety of vegetables every day, including cooked dry beans and peas.
- **Fruits:** Fruits provide vitamins and minerals. Fruits can be dried or canned, frozen or fresh. Choose whole or pieces of fruit that are frozen, fresh, canned or dried. Oranges, grapefruit, strawberries and melons have Vitamin C which helps our bodies to heal and resist infections and it helps your body absorb the iron in the food you eat. It is also needed for healthy teeth, gums, and blood vessels. Deep yellow fruit like apricots and cantaloupe have Vitamin A.
- **Oils:** We do need some for good health. Get your oils from fish, nuts, and liquid oils such as corn oil, Canola oil or Olive oil. Foods that are high in fat include chips, fries, snack cakes, cookies and candy.
- **Dairy Products:** Milk gives us calcium to keep our bones and teeth strong. Milk and foods made from milk are the best sources of calcium. While you are growing, your bones need the calcium in your foods, so have three to four servings from the milk group every day.
- **Protein Foods:** Meats and Beans provide iron and protein for our body. Meats can be frozen, home canned or dried as jerky. Iron moves oxygen throughout your body in your red blood cells. Protein promotes the growth and repair of body tissues. Foods in this group include meats, poultry, fish, eggs, beans, nuts and peanut butter. When you eat a food from the protein group, it should be lean – that means it doesn't have much fat in it. Baking, broiling, or grilling are the best choices for cooking protein foods rather than frying because they do not add fat to the meat.

## Choose MyPlate Worksheet

**Choose MyPlate Worksheet:** For one day keep track of all the food you eat and how much of each food you eat. Record the food you ate and the amount on the *Choose MyPlate* Worksheet. After you have listed your choices, then list each food item in its food group; for example if you had a banana for breakfast, list it under the Fruits group, milk in the Milk group and so on. Now, add up your total for each food group. Compare your totals to the amount you should be eating for your age and gender. Answer the following questions.

- What food groups were lacking?

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- Do you need to eat less of any food group?

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- What changes could you have made on this day to eat better?

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- List two goals for yourself to improve your eating.

1. \_\_\_\_\_





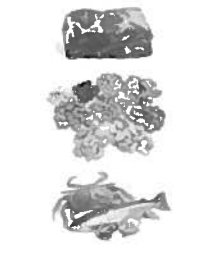

2. \_\_\_\_\_

This worksheet can be used as a selected activity for multiple years. It is a good idea to track the foods you eat on a regular basis to check and see how you are doing?



# Choose MyPlate Worksheet: For Kids

Check how you did yesterday and set a goal to aim for tomorrow. Star all the foods that were home preserved.

Write in your choices from yesterday	Food and Activity	Goal (Based on a 1800 Calorie Pattern)	List Each Food Choice In Its Food Group*	Estimate Your Total
Breakfast:	<b>Grains</b> 	<b>6 ounces equivalents</b> (1 ounce equivalent is about 1 slice bread, 1 cup dry cereal, or ½ cup cooked rice, pasta or cereal)		___ounce equivalent
Lunch:	<b>Vegetables</b> 	<b>2-1/2 cups</b> (choose from dark green, orange, starchy, dry beans and peas, or other veggies)		___cups
Snack:	<b>Fruits</b> 	<b>1-1/2 cups</b> (choose from fresh, frozen, canned or dried) 1 ½ cups is equal to ¾ dried		___cups
Dinner:	<b>Dairy Products</b> 	<b>3 cups</b> (1 cup yogurt or 1-1/2 ounce cheese = 1 cup milk)		___cups
Physical Activity	<b>Protein Foods</b> 	<b>5 ounces equivalents</b> (1 ounce equivalent is 1 ounce meat, chicken or turkey, or fish, 1 egg, 1 T. peanut butter, ½ ounce nuts, or ¼ cup dry beans)		___ounce equivalent
	<b>Physical Activity</b> 	<b>At least 60 minutes of moderate to vigorous activity a day or most days</b>		

How did you do yesterday? <input type="checkbox"/> Great <input type="checkbox"/> So-So <input type="checkbox"/> Not So Great My food goal for tomorrow is: _____ My activity goal for tomorrow is: _____	*Some foods don't fit into any group. These "extras" may be mainly fat or sugar - limit your intake of these
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# Reading Food Labels

Smart eating is part of growing and staying healthy. *Choose MyPlate* helps you make good choices for a healthy, balanced diet. Pay attention to the amount of foods from each food group to help you find out if you eat enough or too much of some foods. When you completed your *Choose MyPlate* Worksheet, did you find that you were not eating all of the right foods?

It is not always easy to know what amount of food is a serving. For example, how many crackers are in a serving? How much cereal do you pour in a bowl for a serving from the Grain Group? The answers are easy if you know where to look.

Most foods in the grocery store must now have a nutrition label and list of ingredients. Look for the Nutrition Facts Label on the food package or container. This label shows the serving size, how many servings are in the package or container, and other nutritional information, such as a list of ingredients in descending order.

**Serving Size:** The first place to start when you look at the Nutrition Facts Label is the serving size. Just below that is the number of servings in the package or container. The Nutrition Facts Label on this chili label shows that a serving size is 1/6 of the recipe. This can of chili contains 4-5 servings.

Calories provide a measure of how much energy you get from a serving. In this can of chili there are 269 calories in one serving of the chili.

**% Daily Value (%DV):** The %DV is the amount of a nutrient in one serving compared to dietary recommendations. What is the %DV for Total Fat in the can of chili? **Nutritional Analysis:** The nutritional analysis is like having a Nutrition Facts Label for the recipe. We should limit our intake of Total Fat, Cholesterol, and Sodium. Look for foods low in saturated fats, trans fats, and cholesterol. (5%DV or less is low, 20%DV or more is high). Most of the fats you eat should be polyunsaturated and monounsaturated fats. Keep total fat intake between 20% to 35% of calories.

Is the %DV for saturated fat high or low on the can of chili?

**Sodium:** The Dietary Guidelines for Americans suggest that we need to lower our sodium intake to less than 2300 milligrams per day to reduce the risk of high blood pressure. Most of the sodium we eat comes from processed foods, not from the saltshaker. When we do our home preserving, we can control the amount of sodium added to our product. That is another advantage of home preserving. One teaspoon of salt equals about 2300 milligrams of sodium. Ask yourself the following questions.

How much sodium is in the can of chili if you ate the whole container? Figure that there were 4 servings in the can.

How much sodium is in one serving?

Is the %DV for sodium for one serving, high or low?

<b>Nutrition Facts</b>			
Serving Size 1/6 of recipe 275g (275 g)			
Servings per container 4-6			
<b>Amount Per Serving</b>			
<b>Calories 269</b>		<b>Calories from Fat 37</b>	
<b>% Daily Value*</b>			
<b>Total Fat</b> 4g			7%
<b>Saturated Fat</b> 1g			3%
<b>Trans Fat</b> 0g			
<b>Cholesterol</b> 0mg			0%
<b>Sodium</b> 277mg			12%
<b>Total Carbohydrate</b> 50g			17%
<b>Dietary Fiber</b> 12g			49%
<b>Sugars</b> 4g			
<b>Protein</b> 13g			
<b>Vitamin A</b>	53%	<b>Vitamin C</b>	31%
<b>Calcium</b>	13%	<b>Iron</b>	28%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:			
	<b>Calories</b>	<b>2,000</b>	<b>2,500</b>
<b>Total Fat</b>	Less than	65g	80g
<b>Sat Fat</b>	Less than	20g	25g
<b>Cholesterol</b>	Less than	300mg	300mg
<b>Sodium</b>	Less than	2,400mg	2,400mg
<b>Total Carbohydrate</b>		300g	375g
<b>Fiber</b>		25g	30g
<b>Calories per gram:</b>			
<b>Fat</b> 9	•	<b>Carbohydrate</b> 4	• <b>Protein</b> 4

**Sugar:** Sugars are found naturally in fruits, (fructose) and fluid milk and milk products (lactose). The majority of sugars in typical American diets are sugars added to foods during processing, preparation, or at the table. The dietary Guidelines for Americans suggest that we need to reduce the intake of calories from solid fats and added sugars. In home food preservation, we can control the amount of sugar added to fruits and other products.

Be sure to get enough of Potassium, Dietary Fiber and Vitamins and Minerals. Remember that 5%DV is low and 20%DV or more is high. Is the calcium listed on the label high or low?

Going Further: You might want to collect your own label then answer the following questions. What is the food item? What is the serving size? How many calories are in the item per serving?

You may also want to collect several different brands of the same item and compare the labels. Compare cartons of fruit juice with fruit drink, or several boxes of dry cereal or energy bars.

## How Much Should You Eat?

ChooseMyPlate.gov or nutrition.gov to give you amounts that you should eat to stay healthy. It depends on your age, whether you are a girl or boy, and how active you are. Kids who are more active burn more calories, so they need more calories. The following guidelines are only estimates for how much you need of each food group.

**Grains:** Grains are measured in ounce equivalents. Eat 5 to 6 ounces every day, and remember that at least half of these should be whole grains. An ounce equivalent equals:

- 1 slice of bread
- ½ cup of cooked cereal, such as oatmeal
- ½ cup of rice or pasta
- 1 cup of cold cereal

- 4- 8 year olds need 4 to 5 ounce equivalents each day
- 9-13 year old girls need 5 ounce equivalents each day
- 9-13 year old boys need 6 ounce equivalents each day
- 14-18 year old girls need 6 ounce equivalents each day
- 14-18 year old boys need 7 ounce equivalents each day

**Vegetables:** You need to eat dark green and orange vegetables. Vegetable servings are measured in cups. Vegetables can be canned or dried, frozen or fresh.

- 4- 8 year olds need 1 ½ cups of veggies each day
- 9-13 year old girls need 2 cups of veggies each day
- 9-13 year old boys need 2 ½ cups of veggies each day
- 14-18 year old girls need 2 ½ cups of veggies each day
- 14-18 year old boys need 3 cups of veggies each day

**Fruits:** Fruit is part of a healthy diet. Here is how much fruit you need. Fruit can be canned or dried or frozen or fresh.

- 4-8 year olds need 1 cup to 1 ½ cups of fruit each day
- 9-13 year old girls need 1 ½ cups of fruit each day
- 9-13 year old boys need 1 ½ cups of fruit each day
- 14-18 year old girls need 1 ½ cups of fruit each day

14-18 year old boys need 2 cups of fruit each day

One-fourth cup of dried fruit is equal to ½ cup fresh fruit.

**Dairy Products:** Calcium builds strong bones to last a lifetime, so you need to get these foods in your diet.

4-8 year olds need 1 cup to 2 cups of milk or another calcium rich food each day

9-13 year old girls need 3 cups of milk or another calcium rich food each day

9-13 year old boys need 3 cups of milk or another calcium rich food each day

14-18 year old girls need 3 cups of milk or another calcium rich food each day

14-18 year old boys need 3 cups of milk or another calcium rich food each day

**Protein Foods:** These foods contain iron and lots of other important nutrients. These foods, like grains, are measured in ounce equivalents. An ounce equivalent equals:

1 ounce of meat, poultry, or fish

¼ cup cooked dry beans

1 egg

1 tablespoon of peanut butter

A small handful of nuts or seeds

4-8 year olds need 3 to 4 ounce equivalents each day

9-13 year old girls need 5 ounce equivalents each day

9-13 year old boys need 5 ounce equivalents each day

14-18 year old girls need 5 ounce equivalents each day

14-18 year old boys need 6 ounce equivalents each day

## Let's Plan a Menu

Planning a menu can be fun when you base it on the *Choose MyPlate*. Using the guidelines we have talked about, determine how much food you should eat daily from each of the food groups. Then divide the total amount of food you should eat each day among three meals and one or two snacks.

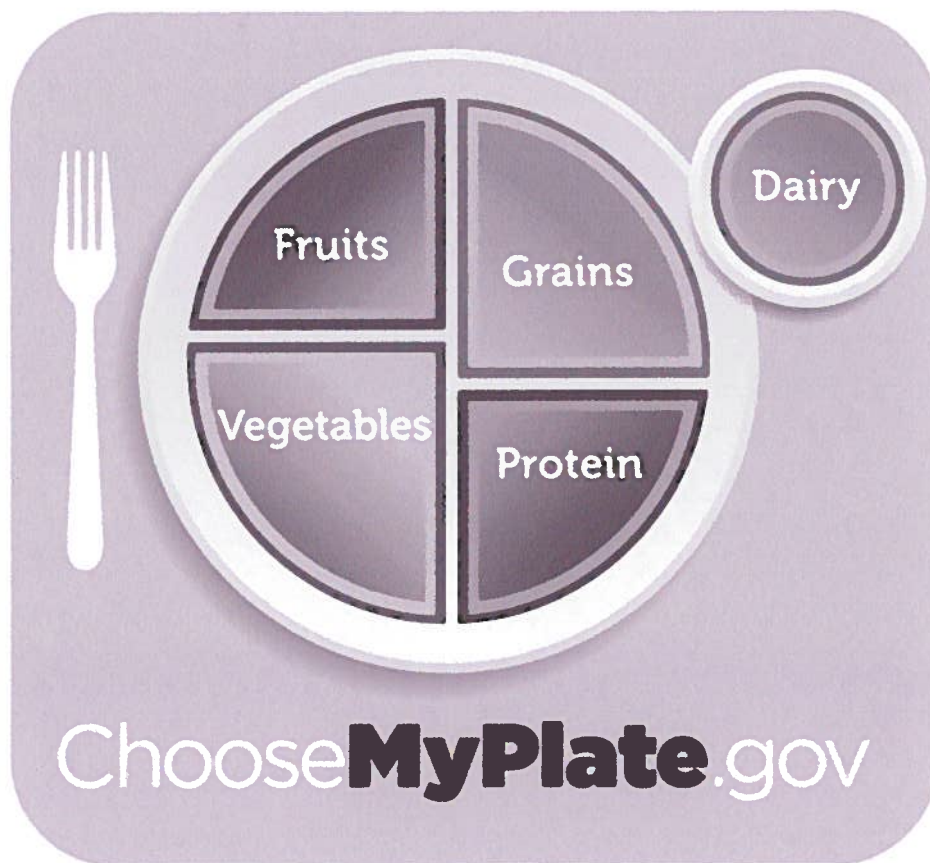
Make your meals fun and interesting. Try to include; a variety of foods to make the meal interesting and healthy; different colors and shapes of food that make the meal appealing when served together; different textures and flavors, some crunchy foods and some soft foods, chewy foods and liquids or maybe spicy foods and mild foods; and hot and cold foods.

**Your menu should include foods from at least three or four of the five food groups at each meal.**

Remember to include foods that you have made in your project. It might be dried fruits or canned fruits, frozen vegetables or salsa and canned products. You might want to include your trail mix for a snack that you did in the drying manual.

If you want another challenge, plan all the meals for a day, or a week including snacks. You might choose to rate the meals for texture color and taste. You might also want to compare the meals to *Choose MyPlate* to see if you have provided the recommended number of servings for each food group.

Going Further: Organize your menus in a binder or file. You might choose to exhibit them at your fair as part of your Food Preservation project.



# **Types of Food Preservation**

There are seven major methods of food preservation:

1. Refrigeration
  - Slows the growth of microorganisms
  - Slows action of enzymes
2. Freezing
  - Prevent growth of microorganisms
  - Slows, but does not stop enzyme action
3. Canning
  - Heat destroys the microorganisms that may be present in the food
  - Yeasts and molds are destroyed when food reaches 190F
  - Pressure canning enables the processing of canned foods at temperatures higher than boiling water, where dangerous bacteria are killed
  - Proper canning practices, removes air from the jars, leaving a vacuum
  - Molds and some yeasts are unable to grow in a vacuum
4. Sweetening and Acidifying Jellies and Jams
  - Added sugar and acid tie up free water and lowers pH
5. Pickling and Fermenting
  - Fermenting uses bacteria to produce lactic acid and lowers the pH
  - Added acid (fresh pack) controls pH with vinegar
6. Drying
  - Removes water and prevents growth of microorganisms
  - Dried foods must be packaged in oxygen and moisture proof containers
7. Salting
  - Chemically bonds water, inhibiting growth of microorganisms

# Kitchen and Food Safety Basics

## Kitchen Safety

Kitchens are safe! It's the people who work in the kitchens who create problems. Problems can be prevented if equipment and utensils are used properly and sharp items and hot foods and water are handled carefully. When working in the kitchen, one must be aware of safety hazards that may occur and take precautions to prevent injuries or accidents from happening by creating and maintaining a safe working environment.

The most common accidents happen in the kitchen, such as burns, cuts and falls. While cooking should be fun, you need to follow a few basic rules.

- Don't be in a hurry. Accidents happen when you're in too much of a hurry.
- Always clean up spills. Serious injury can occur when someone falls due to a wet floor.
- Never leave food unattended. Many fires develop while not paying attention to what is cooking.
- Don't use a towel in place of a hot pad. Always use potholders in both hands.
- Turn handles to the side and away from the edge of the stove.
- When cutting food, always cut away from you. Learn how to handle a knife properly.
- Never put a sharp knife or utensil in a sink of soapy water. Someone might put their hands in the sink and cut themselves on the knife.
- Don't leave a metal spoon in a pot that is boiling.
- When opening the lid on a steaming pan, always lift away from you. Steam can burn just as easily as boiling liquid.
- Don't use electrical appliances around the sink or water.
- Avoid loose clothing and flowing hair. If you have long hair, tie it back.

## Food Safety

- Wipe up spills when they happen.
- Wash hands with soap under warm water for at least 20 seconds. Dry hands on a disposable paper towel or a towel designated just for hands.
- Use clean towels and dishcloths.
- Never put a spoon in your mouth, and then back in the food.
- Avoid cross contamination by using separate cutting boards for meat and fruits and vegetables.
- Keep all preparation and cooking surfaces clean.
- Thoroughly clean all dishes, equipment and utensils with hot, soapy water after use.
- Follow the 2 hour rule. Never leave prepared foods on the counter for longer than 2 hours.

## Food Preservation Food Safety

- Be sure to use the correct equipment for each preservation technique.
  - Boiling water canner for acid foods
  - Pressure canner for low-acid foods
  - Dehydrator for drying

- Freezer with plenty of space for freezing
- Preservation does not improve the quality of any food. Always use fresh, ripe, un-bruised, high quality produce for food preservation.
- Pre-treating fruits and vegetables before drying or freezing will help control enzyme reactions. Enzyme reactions can lead to discoloration, loss of flavor and loss of nutrients.
- Blanch vegetables before freezing to stop enzyme action. Enzyme action will cause food to deteriorate faster.
- Frozen foods must be packaged in a way that protects them from the dry climate in the freezer and excludes as much air as possible. Good packaging materials are:
  - \* moisture-vapor resistant
  - \* durable and leak proof
  - \* resistant to cracking and brittleness at low temperatures
  - \* able to protect foods from absorption of off flavors and odors
- The size and temperature of the freezer and the amount of food placed in the freezer in a single day determines how fast the food will be frozen.
- If frozen foods are stored in a refrigerator-freezer, plan to use these foods within a period of several weeks.
- If the freezer goes off:
  - \* Do not open the freezer.
  - \* Cover the freezer with blankets. Pin the blanket away from the air vents since air is needed when the electricity comes on.
  - \* If service is not resumed in 2 days, use 2 ½ pounds of dry ice per cubic foot.
  - \* Some partially thawed foods can be refrozen. If thawed food still contains ice crystals, they are cold enough and safe to refreeze.
  - \* Discard food warmer than 40° F for more than 2 hours, foods contaminated by raw meat juices, soft or melted ice cream.



## Basic Food Preservation Equipment

Equipment	Use	Canning	Drying	Freezing
<b>Dry measuring cups</b>	Used to measure dry and solid ingredients. They usually come in a nesting set of 1 cup, ½ cup, 1/3 cup, and ¼ cup.	X	X	X
<b>Liquid measuring cups</b>	Used to measure liquids. You can see through the cup to measure and there is headspace.	X	X	X
<b>Measuring spoons</b>	Used to measure small quantities of dry and liquid ingredients. Measure liquid ingredients, measure carefully to avoid spills.	X	X	X
<b>Sharp knives and Cutting boards</b>	Used to cut food to desired size. Wash knives and cutting boards after each use in warm soapy water.	X	X	X
<b>Potholders</b>	Used to protect hands when working with hot pans.	X	X	X
<b>Rubber spatula</b>	Used to scrape the side of the bowls or pans. You can use the flat side to level dry or solid ingredients when measuring.	X	X	X
<b>Large pans</b>	Use Heavy duty pans are for cooking ingredients. Do not use aluminum pans as they break down under the required heat.	X	X	X
<b>Long handled spoons</b>	Used to stir. Choose spoons that are tall enough that they will not fall down into the ingredients.	X	X	X
<b>Mixing bowls</b>	Used to hold and combine ingredients. Made of pottery, glass, metal or plastic. Come in different sizes.	X	X	X
<b>Funnel</b>	Used to pour liquid items into jars.	X		X
<b>Colander</b>	Used to drain foods after washing.	X	X	X
<b>Timer</b>	Use to time food preparation and processing times.	X	X	X
<b>Dehydrator</b>	Used to produces the best quality dried products, and is the most popular drying method. A variety of electric dehydrators are available.		X	
<b>Airtight Storage Containers</b>	Used for the containers that you can eliminate air from are best.		X	X
<b>Food Chopper, Blender or Food Processor</b>	Used to chop, blend, and puree items for food preservation. These optional items can cut back on preparation time. Handle them under the supervision of an adult.	X	X	X

<b>Labels, permanent markers</b>	Used to identify the type of food, pretreatment step and date.	<b>X</b>	<b>X</b>	<b>X</b>
<b>Double-Boiler</b>	Used to extract juice and to cook fruit leather before drying.	<b>X</b>	<b>X</b>	
<b>Cookie Sheet or Jelly Roll Pan</b>	Used for freezing items individually before packaging them and for drying in the oven.			<b>X</b>
<b>Blanching basket</b>	Used for blanching vegetables before freezing or drying.		<b>X</b>	<b>X</b>
<b>Freezer Bags and Freezer Jars</b>	Used for safely storing frozen or dried foods for an extended period of time.		<b>X</b>	<b>X</b>
<b>Jars and Lids</b>	Used to hold preserved foods. Choose Mason type, threaded, home canning jars with 2-part lids. Recommended sizes: ½ pint, 1 ½ pint, quart and ½ gallon (only for juice).	<b>X</b>	<b>X</b>	<b>X</b>
<b>Bubble Remover &amp; Headspace Measurer</b>	Used to accurately measure headspace and is tapered on the other end to remove bubbles from the jar. Only use plastic versions.	<b>X</b>		
<b>Peeler</b>	Used to remove the skin of vegetables.	<b>X</b>	<b>X</b>	<b>X</b>
<b>Scale</b>	Used to weigh fruit and vegetables for preserving.	<b>X</b>		<b>X</b>

Throughout this manual teaspoon and tablespoon have been abbreviated as tsp. and tbsp.

# Freezing Foods

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## Objectives

- Learn how to safely freeze foods and maintain top quality
- Learn how to use the frozen foods you prepared in healthy recipes
- Learn to show others how to preserve foods by freezing

## Why Freeze Foods

Freezing is one of the easiest, quickest, and most convenient methods of preserving foods for later use. Properly frozen foods maintain more of their original color, flavor and texture, and generally more of their nutrients than foods preserved by other methods.

## Freezing Basics

Cold temperatures stop the growth of organisms that can make you sick. Foods that are frozen continue to be safe because of these cold temperatures. Freezing also slows down the chemical reactions that break down food and can make them poorer quality. Freezing does not improve food so start with the best and freshest available; this is a good idea when using any method of food preservation. Different foods have different freezing recommendations; for instance some foods require a pretreatment called blanching while others do not. Blanching is the process of immersing food into boiling water for a short period of time, then into cold water. This stops the enzyme process that could cause off colors and flavors in frozen fruits and vegetables. Some foods freeze better in a liquid than they do dry. An example would be choosing to freeze peaches in liquid syrup rather than dry packing peaches in sugar. Follow approved recipes and instructions for best results.

## Getting Ready to Freeze – General Information

### Freezing Fruits:

Select ripe fruit that is not soft or mushy, fruit ripened on the tree or vine is best. Use only freshly harvested fruit and prepare as quickly as possible for the best results. Wash, peel, trim, pit or slice as directed or needed.

Any fruit can be frozen without sugar however the texture may be softer. There are two types of packs; dry and syrup. Fruits that will be used for cooked products are often packed dry in sugar.

Follow these guidelines:

- Use 1 cup of sugar for each 2 to 3 pounds of fruit
- Mix sugar and fruit gently until the sugar has dissolved in the juice
- Pack loosely in suitable packaging, leave ½ inch headspace, label and freeze

Fruits that will be served uncooked are usually packed in syrup. Follow these guidelines:

- Prepare the strength of syrup desired; this will depend on the sweetness of the fruit, intended use of product and your personal preference
- Fruit may also be packed in water or fruit juices
- Plan for about 2/3 cup of syrup for each pint of fruit; about 1 1/3 cup for each quart

Syrup Strength	Water	Sugar	Yield
Light	4 cups	1 cup	4 ¾ cups
Medium	4 cups	1 ¾ cups	5 cups
Heavy	4 cups	2 ¾ cups	5 ½ cups

- Dissolve sugar in hot water to fully dissolve the sugar. Cool before using.
- Place fruit in the selected container and pour the syrup over the fruit. Allow headspace, label and freeze.

Light-colored fruit may turn brown, to prevent this ascorbic acid or a commercial anti-darkening agent maybe added. Ascorbic acid is available in the canning sections of many stores or use 500-milligram vitamin C tablets. Three crushed tablets equal ½ teaspoon of ascorbic acid.

Follow these guidelines:

- For syrup packs add ½ teaspoon of ascorbic acid to each quart
- For dry packs dissolve ½ teaspoon ascorbic acid in 3 tablespoons of cold water and sprinkle over 4 cups of fruit before adding sugar
- Follow manufacturer's directions for commercial anti-darkening agents

Fruit	Preparation	Freezing Method
Apples	Wash, peel, core and slice, use anti-darkening agent to prevent browning	Syrup pack, dry pack or pack without any sugar and freeze
Bananas	Peel and freeze whole for snacks or mash with anti-darkening agent	Wrap whole bananas tightly, pack mashed bananas into container and freeze
Cherries, sweet	Stem, wash and pit if desired	Syrup pack, dry pack or pack without any sugar and freeze
Pears	Wash, peel, cut in halves or quarters, core and heat in syrup for 1 to 2 minutes, drain and cool	Syrup pack and freeze
Peaches	Wash, peel, remove pit, cut into halves or slices, use anti-darkening agent to prevent browning	Syrup pack, dry pack or pack without any sugar and freeze
Raspberries	Wash and drain	Syrup pack, dry pack or pack without any sugar and freeze
Strawberries	Wash, drain and remove hulls, slice if desired	Syrup pack, dry pack or pack without any sugar and freeze
Cantaloupe, melons	Cut in half, remove seeds, peel, cut into slices, cubes or balls	Syrup pack and freeze

Source: Raab, Carolyn A. 2007. Freezing Fruits and Vegetables. PNW 214. Corvallis, OR: Oregon State University Extension Service.

### Individual Quick Freeze (IQF):

The best way to freeze individual pieces of fruit or vegetables is to prepare them by washing, draining, hulling or pitting or peeling if necessary, and placing them single layered on a cookie sheet. Freeze immediately, and once frozen, package in an airtight container for convenient use in smoothies or other recipes that call for a specific amount.

### Freezing Juices:

Many kinds of fruit juices can be prepared and frozen for later use. These include cherry, grape, plum, raspberry and strawberry. The procedure is similar for each:

- Use only fully ripe and high quality fruit
- Prepare fruit by washing, draining, hulling or pitting or peeling if necessary
- Extract juice by heating the fruit slightly and straining through a jelly bag or placing the fruit in a steam juicer
- Sweeten as desired
- Pour into containers allowing 1 inch headspace, seal and freeze.

Note: Grape juice must be allowed to sit overnight in the refrigerator to allow sediment to sink to the bottom. Pour off the clear juice or strain the juice before freezing.

Tomato juice can be extracted by simmering quarters or eighths of tomatoes for 5 to 10 minutes, then press through a sieve or food mill, salt if desired and then freeze. Omitting the heating phase will cause the juice to separate.

### Freezing Vegetables:

Always select the best and freshest vegetables for any method of food preservation. If possible they should have been harvested that morning or the evening before when it was cool. Prepare vegetables quickly to avoid loss of quality or store in the refrigerator if there is going to be a delay. Wash, and sort under cool running water, peel, trim, pit or cut into pieces as directed or needed.

Prepare vegetables for freezing by blanching. Blanching is the process of immersing food in boiling water for a short period of time, then cooling quickly to stop cooking. This short heat treatment stops the enzymes that can cause undesirable changes in the food after it is frozen. Without proper blanching of most vegetables there may be a loss of nutritive value and changes in color, flavor and texture.

Follow these guidelines:

- Put water in a large saucepan with a tight lid and bring to boil
- Allow 1 gallon of water for each pound of vegetables, except leafy greens which requires 2 gallons per pound
- Place a small quantity of vegetables in a basket or strainer and immerse in water
- Cover saucepan and boil for the length of time required, beginning time as soon as the vegetables are placed in the water

- Lift vegetables out of the water and cool immediately under cold running water or ice water for about the same length of time as blanching
- When cool, drain, pack into containers and freeze

<b>Vegetable</b>	<b>Preparation</b>	<b>Blanching &amp; Freezing</b>
Beans, snap	Wash, snip off ends, cut or break into pieces or slice lengthwise	Blanch 3 minutes, cool, pack and freeze
Beets	Select beets less than 3 inches across, remove tops, wash and cook until tender (small 25-30 minutes, medium 45-50 minutes)	Cool, pack and freeze; may be sliced or diced before freezing
Carrots	Remove tops, wash, scrape, dice or slice ¼ inch thick	Blanch 2 minutes, cool, pack and freeze
Corn, cut off cob	Husk, remove silk and wash.	Blanch ears 4 to 5 minutes, cool, cut off cob then pack and freeze
Onions	Peel, wash and chop	Blanch 1½ minutes, cool, pack and freeze, may also be frozen unblanched
Peas, edible pod	Wash, remove ends and strings	Blanch small pods 1 minute, large 1 to 2 minutes, cool, pack and freeze
Peppers, sweet	Wash, cut out stem, remove seeds, halve, slice or dice	Blanch halved peppers 3 minutes, sliced or diced 2 minutes, cool, pack and freeze, may also be frozen unblanched
Tomatoes	Remove stem ends, peel and quarter, cook until tender, best if pureed or minced	Cool by setting pan in cold water, pack and freeze
Zucchini	Wash and slice small tender squash	Blanch ¼ inch pieces 3 minutes, 1½ inch pieces 6 minutes, cool, pack and freeze

Source: Raab, Carolyn A. 2007. Freezing Fruits and Vegetables. PNW 214. Corvallis, OR: Oregon State University Extension Service.

### Freezing Meat, Fish and Poultry:

Freezing meat, fish and poultry at home is a simple and cost efficient way to have quality protein sources readily on hand for your family. Freeze only fresh, high-quality meat, fish and poultry. Remember to protect food from drying (freezer burn) by wrapping or packaging in recommended wraps or containers and remove as much air as possible. Packages should contain only enough product to be cooked at one time; thawing and refreezing product will decrease its quality. . Here are some general guidelines:

- Freezer wraps are acceptable for meats, fish and poultry but must be moisture-resistant, flexible and limit the transfer of flavor and odor.
- Label each package with the date, type of food and weight or number or servings or pieces.
- Limit the amount frozen at one time to 2 to 3 pounds per cubic foot of freezer space, rapid freezing protects against loss of quality.
- Cut meat into roasts, steaks, chops, stew meat and other cuts for family needs.
- Boneless cuts are smoother to wrap and take less space.
- Watch for sharp bones which might pierce wrapping material.
- Fish should be washed, cleaned and descaled, cut into fillets or left whole.

- Whole birds may be frozen, clean and remove all internal organs. Package in wrap or freezer bag with as much air removed as possible
- Poultry may also be cut up and package for family needs
- Perishable foods should be thawed in a refrigerator to prevent bacterial growth

<b>Food</b>	<b>Suggested Storage Time 0°F</b>
Ground Beef	2-3 months
Beef Steaks, Roasts	8-12 months
Bacon	Less than 1 month
Ham	1-2 months
Salmon, Tuna	5-9 months
Cod, Haddock	7-12 months
Whole Turkey	6 months
Whole chicken	12 months
Poultry cuts	12 months

Source: Meakin, Eunice A., 1983. Freezing Meat, Fish and Poultry at Home. Extension Bulletin 1195. Pullman, WA: Washington State University Extension.

### Freezing Convenience Foods:

There are many benefits to freezing main dishes, baked goods, desserts and other foods for use at a later time. You can prepare foods in quantity when you have time so they are available to enjoy when you are busy, avoid waste by freezing leftovers, use time more efficiently by making more than one dish at a time or save money by making convenience foods yourself and freezing them for later use. Keep in mind that prepared foods have a shorter storage life than their ingredients, for instance an apple pie can be frozen for 3-4 months while the apples alone can be frozen for 8-10 months without significant loss of quality. Some products don't freeze well and you must also allow adequate time for thawing. With that in mind, here are some general guidelines:

- Foods to be frozen should be slightly undercooked if you are going to reheat them after freezing
- Cool foods quickly after cooking to ensure safety, it is recommended to freeze in serving size portions not large quantities
- Select packaging suited for thawing and reheating, remember it must be moisture and vapor resistant, label all packages with the contents and reheating instructions

<b>Food</b>	<b>Preparing &amp; Packaging</b>	<b>Thawing &amp; Heating</b>	<b>Suggested Storage Time 0°F</b>
Waffles	Bake to light brown, wrap individually or in pairs	Heat without thawing in a toaster	1-2 months
Cookies, baked	Bake according to recipe, package in rigid container with freezer paper between layers	Thaw 15-20 minutes in wrapping	4-6 weeks
Cookies, unbaked	Prepare according to recipe, form dough into roll, wrap tightly and freeze	Slightly thaw dough and slice, bake cookies according to recipe	2-3 months
Pizza	Make as usual, do not bake,	Unwrap, bake unthawed	1 month

	freeze and then package	at 450°F, 15-20 minutes	
Applesauce	Make as usual, cool quickly and pack into containers	Thaw in refrigerator	8-10 months
Freezer Jam	Follow the recipes on packages of commercial pectin.	Thaw in refrigerator	1-3 years

- Nonperishable foods (bread, cakes and cookies) can be thawed at room temperature in their packaging
- Perishable foods should be thawed in a refrigerator to prevent bacterial growth
- Perishable foods that were cooked and frozen can be reheated in an oven or microwave; they must be reheated to 165°F internal temperature. Use a food thermometer to be sure this temperature is reached.

Source: Freezing Convenience Foods, PNW 296

## Packaging

Frozen foods must be protected from the dry climate in the freezer and be packaged with the least amount of air as possible. Good packaging materials are moisture and vapor resistant, durable and leak proof, resistant to cracking, and easy to seal and label. Packaging must be expandable or sealed with sufficient headspace for expansion. For rigid containers leave at least ½ inch of space between the food and the lid, this area is called headspace. Plastic freezer bags are easy to use, come in various sizes and work well for most frozen foods. Be sure to use only bags labeled as “freezer” bags to assure product quality. Bags can be gently squeezed or rolled to remove as much air as possible. Vacuum sealers may also be used for freezing foods. Follow instructions that come with the sealer.

## Labeling

Every package should list the name of product, date frozen and other important information such as added ingredients or amounts. Be sure to use freezer tape, marking pens or labels that are made specifically for freezing. Put foods in the freezer as soon as they are packaged and labeled. Keep an inventory of all the foods in your freezer.

## Storage

Your freezer should be at 0°F or lower. Foods that freeze too slowly may lose quality from the formation of large ice crystals that rupture food cells and cause an undesirable, soft or mushy texture. Be sure not to overload your home freezer, add no more unfrozen food than will freeze in a 24 hour period. This is usually 2 or 3 pounds of food for each cubic feet of capacity. Leave some room between packages until they are completely frozen, they may then be stacked tighter in your freezer. Use a freezer thermometer to monitor the temperature in your freezer. Rotate your frozen foods, eating the older foods first. Most fruits and vegetables will maintain high quality for 8 to 12 months. Frozen foods kept for an extended time will not become unsafe but they will be less tasty.



### If your freezer stops

Frozen food can spoil if your home freezer stops running or if the door is accidentally left open. It is safe to refreeze foods that still have ice crystals. However, refrozen foods will be of lower quality than when originally frozen. If the temperature has warmed to above 40°F foods should not be refrozen, use a thermometer to determine the temperature. Thawed frozen fruit is safe to use although it may have developed an "off" flavor from fermentation. Never use thawed vegetables, precooked meals or meat that is warmer than 40°F; their low acidity makes it possible for harmful bacteria to grow. Remember unsafe foods may not show any sign of spoilage, call your local Extension office for more information and be prepared to explain how long the freezer has been off and what temperature the food reached.

# Activities

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## Let's Freeze Fruit

### 1. Individual Quick Freeze (IQF)

Prepare fruit by washing, draining, hulling or pitting or peeling if necessary, and placing them single layered on a cookie sheet. Freeze immediately and once frozen package in an airtight container for convenient use in smoothies or other recipes that call for a specific amount.

#### Journaling

What fruit did you choose to IQF? \_\_\_\_\_

What challenges did you have with this activity? \_\_\_\_\_

What other observations do you have about this activity? \_\_\_\_\_

### 2. Fruit Smoothies

#### Strawberry Banana Smoothie

2 medium bananas

10-12 IQF strawberries

1 cup apple juice

Place all the ingredients in a blender and mix until smooth. Pour into glasses and enjoy.

Serves four.

#### Create Your Own Smoothie

\_\_\_\_\_ list one fruit you used

\_\_\_\_\_ list one fruit you used

\_\_\_\_\_ list the liquid you used

Explain how you created "Your Own Smoothie" \_\_\_\_\_

#### Journaling

What smoothie recipe did you try? \_\_\_\_\_

What challenges did you have with this activity? \_\_\_\_\_

What other observations do you have about this activity? \_\_\_\_\_

### 3. Freezing Fruit in a Syrup Pack

Choose a fruit to freeze using the syrup pack method. Following the instructions in this manual prepare the syrup strength you prefer, pack fruit into container, and pour syrup over fruit leaving headspace, label and freeze.

#### Journaling

What fruit did you freeze? \_\_\_\_\_

What challenges did you have with this activity? \_\_\_\_\_

What other observations do you have about this activity? \_\_\_\_\_

### 4. Freezing Fruit in a Dry Pack

Choose a fruit to freeze using the dry pack method, following the instructions in this manual mix the correct amount of sugar and fruit, mix, pack, label and freeze.

#### Journaling

What fruit did you freeze? \_\_\_\_\_

What challenges did you have with this activity? \_\_\_\_\_

What other observations do you have about this activity? \_\_\_\_\_

### 5. Freezing Fruit without Sugar

Choose a fruit to freeze using the dry or syrup pack method. For the dry method add fruit, pack, label and freeze. For the syrup method use water only, add fruit, pack, label and freeze.

#### Journaling

What fruit did you freeze? \_\_\_\_\_

What challenges did you have with this activity? \_\_\_\_\_

What other observations do you have about this activity? \_\_\_\_\_

## 6. Freezing Fruit Juice

Choose a fruit for juice, following the instructions in this manual extract the juice from the fruit, pack, label and freeze.

### Journaling

What type of fruit juice did you freeze? \_\_\_\_\_

What challenges did you have with this activity? \_\_\_\_\_

What other observations do you have about this activity? \_\_\_\_\_

## Let's Freeze Vegetables

### 7. Freezing Blanched Vegetables

Choose a vegetable to freeze. Following the instructions in this manual prepare the vegetable, blanch for the correct amount of time, cool, pack, label and freeze.

### Journaling

What type of vegetable did you freeze? \_\_\_\_\_

What challenges did you have with this activity? \_\_\_\_\_

What other observations do you have about this activity? \_\_\_\_\_

### 8. Freezing Vegetables without Blanching

Choose a vegetable such as sweet peppers or onions that don't have to be blanched when frozen. Following the instructions in this manual prepare the vegetable, pack, label and freeze.

### Journaling

What type of vegetable did you freeze? \_\_\_\_\_

What challenges did you have with this activity? \_\_\_\_\_

What other observations do you have about this activity? \_\_\_\_\_

# Let's Freeze Convenience Foods

## 9. Freezing Baked Cookies

Make or buy your favorite type of baked cookie. Following the instructions in this manual, prepare the cookies for freezing by packaging correctly. Within the suggested storage time, thaw the cookies and eat.

### Journaling

What type of cookie did you freeze? \_\_\_\_\_

What challenges did you have with this activity? \_\_\_\_\_

What other observations do you have about this activity? \_\_\_\_\_

## 10. Freezing Pizza

Make or buy your favorite type of ready-to-cook pizza. Following the instructions in this manual prepare the pizza for freezing by packaging correctly. Within the suggested storage time, bake and cook pizza, no need to thaw.

### Journaling

What type of pizza did you freeze? \_\_\_\_\_

What challenges did you have with this activity? \_\_\_\_\_

What other observations do you have about this activity? \_\_\_\_\_

## 11. Making Freezer Jam

Decide what type of fruit freezer jam you would like to make. Prepare fruit by washing, draining and removing hulls on strawberries. Purchase a package of commercial pectin; this can be either liquid or dry, regular, low sugar or no-sugar pectin. Follow the instructions provided with the pectin for freezer jam exactly. A freezer jam made with added pectin is not processed, and therefore retains the taste and bright color of the fresh fruit. It will keep for a few weeks in the refrigerator or 1-3 years in the freezer.

### Journaling

What type of jam did you freeze? \_\_\_\_\_

What challenges did you have with this activity? \_\_\_\_\_

What other observations do you have about this activity? \_\_\_\_\_

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## Other Freezing Activities

### 12. Conduct Taste Tests

Select a fruit or vegetable and freeze using two different methods. Some suggestions are:

- Freeze peaches in a heavy syrup and in plain water
- Freeze strawberries in a sugar dry pack and dry packed with no sugar
- Freeze blanched green peppers and unblanched green peppers
- Mash and freeze bananas with and without an antidarkening agent
- Think of other freezing methods to compare
- Compare home frozen to commercially frozen foods

After thawing and heating (if needed) the two items being compared, share them with a panel of at least four people. Here are some suggestions for your taste test:

- Do not tell the panel the freezing method used
- Ask each panel member to write down comments about each of the samples they are comparing
- Ask the panel to indicate which sample they prefer
- Share the freezing methods used with the panel
- Record the results of your taste test

#### Journaling

What types of frozen foods did you compare in your taste test? \_\_\_\_\_

What challenges did you have with this activity? \_\_\_\_\_

What other observations do you have about this activity? \_\_\_\_\_

### 13. Labeling

Determine how to label each type of packaging for the freezer. Decide if you can write on the package or if you need to attach the label to the package. Here are some important things to include on the label:

- List the name of product
- List the date frozen
- List the ingredients
- List any other information you may want to know about the frozen product

#### Journaling

What type of storage container did you choose to label? \_\_\_\_\_

What challenges did you have with this activity? \_\_\_\_\_

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What other observations do you have about this activity? \_\_\_\_\_

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#### **14. Create a Freezer Inventory**

A freezer inventory is important to keep track of the food in your freezer. Frozen foods are better if they are used before the end of their suggested storage time. Most fruits and vegetables will maintain high quality for 8 to 12 months. Frozen foods kept for an extended time will not become unsafe but they will be less tasty.

Here are some suggestions for your inventory:

- Make a chart on paper listing the items as they are placed in the freezer, be sure to include the date and contents
- Use a computer program such as Excel to create a freezer inventory
- Develop a plan to keep your inventory up-to-date, items being added or removed need to be changed on the inventory sheet

#### **Journaling**

What type of freezer inventory did you create? \_\_\_\_\_

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What challenges did you have with this activity? \_\_\_\_\_

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What other observations do you have about this activity? \_\_\_\_\_

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## **Going Further with Freezing Activities**

#### **Create Your Own Activity**

Using one of the resource materials listed in the front of this manual create your own activity.

Resource materials are available at your local CSU Extension Office.

Here are some suggestions to help you:

- Identify the resource you will be using, for example; *So Easy to Preserve*
- Decide on the recipe or method you want to use
- Get equipment, food and packaging ready
- Follow the information and directions listed carefully
- Evaluate your end results

#### **Journaling**

What activity did you decide to do? \_\_\_\_\_

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What challenges did you have with this activity? \_\_\_\_\_

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What other observations do you have about this activity? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### **Menu Planning**

Using the menu planning information listed in the front of this manual; develop a menu plan for your friends or family. Use some foods that you have frozen for the healthy recipes you include in your menu plan.

#### **Journaling**

What menu or menus did you plan? \_\_\_\_\_  
\_\_\_\_\_

What challenges did you have with this activity? \_\_\_\_\_  
\_\_\_\_\_

What other observations do you have about this activity? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## **Show What You Have Learned**

You are required to give a demonstration to complete this project. The purpose of a demonstration is for you to share some of the fun activities you completed or important information you learned about preserving foods by freezing them. Some ideas you might consider are:

- Define what blanching is and why it is important
- Display different freezer packaging and tell the pros and cons of each
- Show how to label frozen foods properly
- Explain individual quick freezing (IQF)
- Develop and share a home freezer inventory record
- Demonstrate how to read a freezer thermometer and why it is important
- Show how to conduct a taste test
- Share something from one of the recipes you made in this project



# Reflections on Freezing

*Do, Reflect and Apply* are how 4-H youth “Learn by Doing”. You have experienced several activities in this project, shared the results and discussed them with your club members, leaders and families and applied what you learned by showing others how to preserve food by freezing. To show what you have learned answer at least two of these questions.

- Explain why freezing is an effective and economical way to preserve food.

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- Why do vegetables need to be blanched before freezing?

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- How would you evaluate the safety of foods in your home freezer if the electricity was off?

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- Explain the advantages and disadvantages of freezing fruit without sugar?

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- How could you use freezing convenience foods as a way to help with long term menu planning for your family?

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