

4-H CANNING



**EARLY
TEENS**

NAME _____

4-H CLUB _____

COUNTY _____

CANNING—EARLY TEENS

Third Year Activities

- Learn to do more canning alone.
- A garden project would make your canning project a stronger one.
- Learn what fruits are good for making jelly.
- Learn to prepare fruits to make jelly stock.
- Learn to make and can jelly stock.
- Learn the requirements for making jelly.
- What is pectin?
- Learn how to make a home test for pectin.
- Learn how to make jelly.

Requirements to Complete Canning Project

- Can alone at least 20 jars. Include fruits, tomatoes, juices and jelly.
- Help with home canning.
- Exhibit at a 4-H Club meeting or county event or county fair at least 2 jars of food you canned alone.
- Fill out record on page 11 and give to your Canning Leader.
- Keep all records (after your leader returns them to you) for your Longtime 4-H Record Book.

You May Also Want To:

- Prepare meals using foods canned in your canning project.
 - Choose at least one thing you learned and show to other 4-H members.
- This could be shown at home or at a club meeting.

Examples:

How to can tomatoes.

How to test for pectin in fruit juices.

How to cook jelly.

You may think of something else.

- Take more pictures.
- Save all records and materials for Longtime 4-H Record Book.

Fourth Year Activities

- Learn to operate a pressure canner.
- Select and prepare vegetables for canning.
- Learn terms associated with using a pressure canner.
- Learn how to care for a pressure canner.

Requirements to Complete Canning Project

- Help with home canning using a pressure canner.
- Can alone at least 30 jars. Include fruits, juices, vegetables, and jelly.
- Help with home canning.
- Exhibit your best jars of food at a club meeting, at a county event, or the county fair.
- Fill out record on page 13 and give to your Canning Leader.

Additional Activities

- Conduct a garden project.
- Prepare meals using foods you have canned.
- Give a demonstration or show a group something you learned in your canning project.
- Help a first-year club member with her canning project.
- Save all records and materials for Longtime 4-H Record Book.

References:

(Ask your canning leader for these.)

- (1) Pre-Teen Canning Manual
- (2) 4-H Food Preparation Manuals

Note: The Early-Teen Canning Project is a continuation of the Pre-Teen Canning Projects. Refer to the Pre-Teen Manual for information not included here.

JELLY

Jelly is made by cooking fruit juice with sugar until it gels.

Jelly should be clear and tender but firm enough so it will keep its shape when cut.

Fruits Used—Apples, crabapples, grapes, and blackberries are some of the fruits that will make good jelly. These are the fruits with which you will be working in your 4-H Canning Project.

Selecting The Fruit—Pick and use only those fruits that are firm and ripe. Do not use underripe or overripe fruits.

WHY? It is necessary to have pectin to make the fruit juice gel. Juice extracted from underripe and overripe fruit does not contain pectin. Underripe fruit contains protopectin, and overripe fruit contains pectic acid. Neither of these will gel.

Ingredients Needed to Make Jelly

PECTIN—Pectin is a carbohydrate usually found just under the skin and around the core of certain fruits. You cannot make jelly without pectin.

SUGAR—Granulated sugar (sucrose) is used to make jelly. The amount of sugar you use depends on how much pectin is in the fruit juice.

ACID—Use firm ripe fruit that is suggested for making jelly. They usually have enough acid for making jelly, but there is no way at home that we can tell. Acid is needed to change the sugar (sucrose) to a form that does not crystalize.

Test Juice for Pectin—There is a way to test your fruit juice at home to see how much pectin it has. Be sure you do this before making jelly.

DIRECTIONS FOR TEST

1. Mix one teaspoon of cooked jelly stock (or fruit juice) with one teaspoon of alcohol in a small glass. **BE SURE THE FRUIT JUICE IS COOLED TO ROOM TEMPERATURE.**

WHY? The temperature affects the viscosity (rate of flow) of the juice; therefore do not use extremely hot or cold juice for making the test. The viscosity indicates the pectin content of the fruit juice.

2. Let stand one minute.
3. Pour mixture gently into another glass.
4. a) If a **SOLID** mass forms, add 1 cup of sugar to 1 cup of jelly stock (or fruit juice).
b) If the mass is **SLIGHTLY BROKEN**, add $\frac{3}{4}$ cup sugar to 1 cup of jelly stock (or fruit juice).
c) If a mass does not form, there is not enough pectin in the jelly stock (or fruit juice) to make jelly. Just drink the juice and enjoy it.

SAFETY FIRST—Throw away juice and alcohol mixture.

5. Your mother may have a jelmeter which can be used in testing the amount of pectin in fruit juice. You may obtain more information on the jelmeter. See your Canning Leader.

***NOTE:** The addition of commercial pectin is not recommended in making jelly. This produces jelly that is less stable. Also the flavor may not be as characteristic of the fresh fruits. If the above directions are followed closely, a good jelly can be made without additional pectin.*

MAKING JELLY STOCK

It is recommended that you make and can jelly stock and make your jelly as needed. Jelly can then be made in small amounts and at your convenience.

Jelly made from jelly stock is clearer and prettier as the tiny particles left in the juice settle to the bottom of the jar. Another reason we recommend canning the juice is that it keeps its flavor much better and for a longer time than jelly. This way the family has better jelly to put on the table.

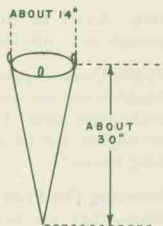
It is necessary for jelly stock made from grapes to settle for a few days before making jelly.

WHY? Grapes contain tartaric acid. This will cause crystals to form in the jelly if it is not removed. Part of the acid may be removed by letting the juice stand in the refrigerator at least overnight (or for a few days). Strain the juice to remove the crystals that have settled to the bottom.

General Directions for Making Jelly Stock

1. **Extracting Juice**—Cook fruit in as little water as possible (see recipes for each fruit). Follow carefully the recipe for time to cook as overcooking can destroy the pectin.

2. **Straining the Juice**—After the fruit is cooked, strain it through a jelly bag. DO NOT PRESS BAG to get more juice. Pressing the bag can make cloudy jelly.



3. **Jelly Bag**—A jelly bag can be made from white flannel. Add loops to the top so you can hang the bag.

Processing Jelly Stock—Jelly stock is processed in a HOT WATER BATH. This is different from the boiling water bath. The temperature in a hot water bath should be at simmering point (180°-210° F.)—just under boiling. We process jelly stock to get an air tight seal, not to actually cook the stock. Therefore, simmering temperature is all that is needed in the hot water bath to process jelly stock. Be sure to have at least 1 to 2 inches of water over the top of jars when processing.

RECIPES FOR FRUIT STOCK

Apple Jelly Stock

Wash apples, cut in small pieces. Put cut apples in a pan large enough to just cover apples with water. Bring to a boil. Cook 40 minutes. Sterilize standard canning jars by completely covering with hot water and boiling 10 minutes.

Strain cooked fruit in jelly bag. Put juice on stove and heat to the simmering point (180°-210° F.). DO NOT BOIL. Pour hot juice into hot sterilized jars. Put on lid. Process at simmering point in a HOT WATER BATH for 10 minutes. Cool, label, and store in a cool, dark, dry place until ready to make jelly.

Grape Jelly Stock

8 pounds of grapes
1 quart of water

Wash and crush grapes and boil with water for 20 minutes. Sterilize standard canning jars by completely covering with hot water and boiling 10 minutes.

Strain cooked grapes in a jelly bag. Put juice on stove and heat to the simmering point

(180°-210° F.). DO NOT BOIL. Pour hot juice into hot sterilized jars. Put on lid. Process at simmering point in a HOT WATER BATH for 10 minutes. Cool, label and store in a cool, dark, dry place until ready to make jelly.

If you do not can the grape stock, let it stand in the refrigerator as explained above.

Blackberry Jelly Stock

6 quarts of blackberries
1 pint water

Wash berries and crush them. Add water to crushed berries and boil for 15 minutes. Sterilize standard canning jars by completely covering with hot water and boiling 10 minutes. Strain cooked blackberries in a jelly bag. Put juice on stove and heat to the simmering point (180°-210° F.). DO NOT BOIL. Pour hot juice into hot sterilized jars. Put on lid. Process at simmering point in a HOT WATER BATH for 10 minutes. Cool, label, and store in a cool, dark, dry place until ready to make jelly.

GENERAL DIRECTIONS FOR MAKING JELLY

Sterilize jelly glasses or jars by covering with hot water and boiling for 10 minutes.

Strain jelly stock (or fruit juice) through a jelly bag. DO NOT press bag.

Test jelly stock (cooled to room temperature) for pectin. See directions on page 3.

Better jelly will be made if you cook it in small quantities (about 3 or 4 cups).

WHY? A small quantity will cook faster and will result in a natural color. The flavor will also be better.

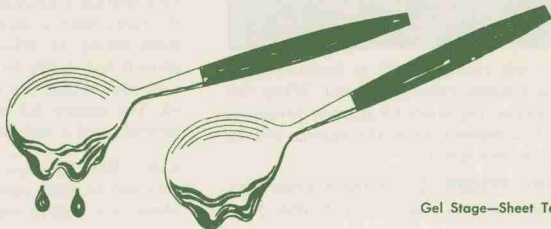
Measure juice and sugar. Put in a pan large enough so you can cook it quickly. Do not use a lid as it will retard evaporation.

You may use the sheet test to tell when gel stage is reached. It is done when the jelly sheets off the spoon and looks like the illustration below.

A thermometer may also be used to test jelly. When the thermometer reaches 222° to 223° F., the jelly is done. Always use the sheet test, too, when using the thermometer. In this way you can be sure the jelly is done. Remove jelly from heat. Skim off foam and pour jelly immediately into hot, sterilized jelly glasses or jars.

Cover jelly with a thin coat of melted paraffin before you put the lid on the glass or jar. Cool, label and store.

Near Gel Stage



Gel Stage—Sheet Test

RECIPES FOR JELLY

Apple Jelly

Use 3 to 4 cups strained apple stock. Test stock for pectin and add sugar. Your test will tell how much sugar to add for each cup of stock. Boil stock and sugar rapidly. Follow general directions for making jelly.

Blackberry Jelly

Use 3 to 4 cups strained blackberry stock. Test stock for pectin and add sugar. Your test will tell how much sugar to add for each cup of stock. Boil stock and sugar rapidly. Gel stage is about 220° F. Follow general directions for making jelly.

Grape Jelly

Use about 3 to 4 cups of well strained grape

stock. Test stock for pectin and add sugar. Your test will tell how much sugar to add for each cup of stock. Boil stock and sugar rapidly. Gel stage is about 223° F. Follow general directions for making jelly.

NUTRITION—Jelly is included in the group of accessory foods—it does not add any large amount of food nutrients in the diet. You get mostly calories (from sugar) when eating jelly. Calories furnish energy. Active young people need a source of quick energy. Jelly and other sweets will supply it.

CANNING QUALITY VEGETABLES

Most vegetables are low in acid. Use the steam pressure canner in canning all vegetables except tomatoes and pickled vegetables.

Vegetables that are low in acid require a processing temperature higher than can be reached in a boiling water bath. Regardless of how long you process jars of food in a boiling water bath canner (at sea level) the temperature remains at 212° F.

***SAFETY FIRST**—Low acid vegetables should always be processed at 240° F. Low acid foods that have been canned at a temperature of 212° F. may contain a dangerous type of bacterium. These foods do not show any visible signs of spoilage; therefore, it is most important to process at 240° F.*

You can only reach 240° F. in home canning by using a steam pressure canner. When the canner gauge registers 10 pounds pressure, the inside temperature of the canner will be 240° F. (at sea level).

CANNING TERMS—Learn these terms used in canning as you start your fourth year canning project.

ACID FOODS—Fruits, tomatoes, pickled vegetables, and rhubarb. These foods can be safely processed in a boiling water bath (212° F.).

LOW ACID FOODS—All vegetables except tomatoes and rhubarb. These foods must be processed in a steam pressure canner at 10 pounds pressure (240° F.).

BACTERIA—Microorganisms that live everywhere. If the bacteria are not destroyed in processing home canned food, they can cause food spoilage.

BLANCHING—The process of dipping a raw food in boiling water for a definite length of time, then dipping the food into cold water.

BOILING POINT—Water heated to 212° F. and bubbles roll from bottom to top.

ROLLING BOIL—Water has rolling bubbles from bottom to top as it boils (212° F.)

BOILING WATER BATH—A method of canning fruits and tomatoes by which water boils around and over jars of food for a definite length of time.

HOT WATER BATH—A method of processing jelly stock, preserves, pickles and jams when you want to obtain an air tight seal. Jars are covered with 1 to 2 inches of hot water with a temperature of about 180°-210° F.

PRESSURE CANNING—A method of canning by which steam under pressure gives temperatures higher than the boiling point of water.

PRESSURE CANNER—A heavily built kettle (pot) with a rack or wire basket and a tight fitting lid. When the lid is fastened in place it is possible to hold steam under pressure and obtain the high temperature needed. The canner lid has a pressure gauge, a petcock, and a safety valve.

AIR TIGHT SEAL—An air tight seal can be obtained in home canning only by processing foods in a boiling water bath, pressure canner, or hot water bath. An air tight seal is one in which no air is inside the jar, and one in which no air or bacteria can get into the jar.

HEAD SPACE—Space left in top of jar when filling the jar with food to be canned.

PRECOOK—The heating of fruits or vegetables for a given length of time before packing into jars for processing.

PROCESSING—Placing filled jars of food into the canner at a certain temperature for a certain length of time.

PRESSURE GAUGE—A gauge that registers the pressure inside the canner.

PETCOCK—The petcock is used to exhaust or vent the hot air from the canner at the beginning of the processing time.

VENTING—Exhausting air from the steam pressure canner.

CANNING LOW ACID VEGETABLES IN THE PRESSURE CANNER

SAFETY FIRST—A pressure canner is safe to operate if you use it correctly and if it is in good condition. Follow the directions recommended in this 4-H Manual in canning vegetables in the pressure canner. Have your pressure canner checked for safety each year. Ask your 4-H Canning Leader where you can have it done. If checked as recommended, the gauge, petcock and safety valve will all be inspected. If the gauge is 3 or more pounds off, it is recommended you have it replaced. Wash the canner carefully after each use and store it properly.

Follow the manufacturer's directions for operating your own pressure canner. These are general recommendations.

Parts to a pressure canner—



Gauge—Registers pounds of pressure inside the canner. A pointer moves as pressure rises inside the canner.

Petcock—The petcock is used to exhaust the hot air from the canner preceding the processing time.

Safety Valve—The safety valve lets excess pressure inside the canner blow off. The safety valve and the petcock are combined in certain types of canners.

Select, wash and sterilize standard canning jars. Select lids and get ready to use.

Select only fresh, young, tender vegetables.

Wash vegetables in several changes of cold water. A good rule to follow in your canning project is to can vegetables as soon after they are harvested as possible.

1. Prepare vegetables for canning as in the directions on pages 8 and 9.
2. Put 2 to 3 inches of water in bottom of canner.

3. Place filled jars of vegetables on rack in canner so they do not touch.

4. Put lid on canner and fasten securely.



5. Leave the petcock open. Watch until steam pours in a steady stream from the petcock. Start counting time.
6. Let steam escape for 10 minutes to drive all air from the canner.
7. Close petcock. Let pressure rise to 10 pounds (240° F.).
8. When 10 pounds pressure is reached, start counting processing time. **PROCESS FOR THE REQUIRED TIME FOR EACH PARTICULAR VEGETABLE.**
9. Keep pressure constant at 10 pounds by adjusting the heat under the canner.
10. When processing time is up, remove canner from heat. Let pressure return to 0° F. Do not lower pressure by opening petcock or pouring water over the canner.

WHY? There is a danger in the jars breaking.

11. When pressure is at 0° F., open petcock so any remaining steam can escape. Remove lid from canner.

SAFETY FIRST—To remove lid, tilt far side up first so hot steam will not burn your face.

12. Use tongs or handles on wire rack to remove jars from canner. **DO NOT TIGHTEN METAL SCREW BANDS.**
13. The next day remove bands. Label and store in cool, dark, dry place.

IF YOU LIVE ABOVE SEA LEVEL—At altitudes above sea level, it takes more than 10 pounds pressure to reach a temperature of 240° F. You will need to increase pressure by 1 pound for each 2,000 feet altitude.

Care of Pressure Canner

Wash pressure canner thoroughly in hot

soapy water after each use. **DO NOT PUT LID IN WATER** because it might damage the pressure gauge and might cause vent to become clogged. Wipe lid with a soapy cloth and then with a clean damp one.

Put crushed newspapers in the canner. Wrap lid with newspaper and turn upside down on canner. Never close lid tightly during storage. It may cause strong odors in the canner. Newspapers help absorb odors.

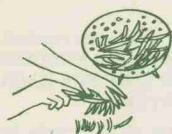
HOW TO CAN SNAP BEANS

Assemble utensils needed for canning.

Select beans fresh from the garden that are young and tender yet are firm and crisp.

Wash and sterilize jars by covering with hot water and boiling for 10 minutes. To get lids ready, follow directions on box.

Wash beans in several changes of cold water.



Cut ends off beans and cut beans into 1 inch pieces. Prepare only enough for one canner load at a time.

Cover beans with water and bring to a rolling boil. Remove one jar at a time from the sterilizing bath.

Pack hot beans loosely to $\frac{1}{2}$ inch of top of jar. Add 1 teaspoon salt to quart jars and $\frac{1}{2}$ teaspoon to pint jars. Cover with boiling liquid in which the beans were precooked. Leave $\frac{1}{2}$ inch head space. Work air bubbles from jar by using a knife.



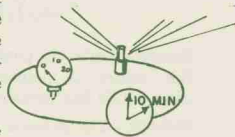
Wipe mouth of jar with a clean, damp cloth. Put lid on jar so that sealing compound is next to jar. Screw metal band on tightly.

Have 2 to 3 inches of water boiling in the pressure canner.



Place filled jars on the rack in canner. Fasten lid securely.

Let steam escape through open petcock for 10 minutes. Close petcock. Let pressure rise to 10 pounds. Adjust heat so pressure will remain constant.



Process pint jars of beans 20 minutes and quart jars of beans 25 minutes.

When processing time is up, remove canner from heat and let pressure fall to 0° F.



Open petcock slowly. To remove lid, tilt far side up first.

Remove jars and cool. Do not tighten screw bands. The next day remove screw bands. Label jar and store in a dark, dry cool place.

HOW TO CAN OTHER VEGETABLES

(Study with pages 6 and 7)

BUTTER BEANS—Select only young, tender beans from the garden. Assemble utensils. Wash and sterilize jars. Prepare lids. Wash bean pods in cold water. Shell and wash again.

Cover beans with boiling water and bring to a rolling boil.

Pack hot beans loosely to 1 inch of top. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water (in which beans were brought to a boil) leaving 1 inch head space.

Work out air bubbles and wipe mouth of jar. Fasten lid.

Process at 10 pounds pressure (240° F.) Pint jars—40 minutes; quart jars—50 minutes.

Cool. Next day label, remove bands and store in cool, dark, dry place.

PEAS—Select only young, tender peas from the garden. Assemble utensils. Wash and sterilize jars. Prepare lids.

Wash peas in pods. Shell and wash again.

Cover peas with boiling water and bring to a rolling boil. Pack hot peas to 1 inch of top of jar. Add $\frac{1}{2}$ teaspoon salt to pint jars; 1 teaspoon to quart jars. Cover with boiling

water (in which peas were brought to a boil) leaving 1 inch head space.

Work out air bubbles and wipe mouth of jar. Fasten lid. Process at 10 pounds pressure (240° F.).

Peas, fresh blackeye—

pint—35 min., quart—40 min.

Peas, fresh green—

pint—40 min., quart—40 min.

SQUASH (SUMMER)—Select only young tender squash from the garden. Assemble utensils. Wash and sterilize jars. Prepare lids.

Wash but do not peel squash. Trim ends. Cut squash into slices, halves or quarters. You may leave small squash whole.

Add just enough water to cover squash. Bring to a boil. Pack hot squash loosely to $\frac{1}{2}$ inch of top. Add $\frac{1}{2}$ teaspoon salt to pint jars and 1 teaspoon to quart jars. Cover with boiling water (in which squash were brought to a boil) leaving $\frac{1}{2}$ inch head space.

Work out air bubbles and wipe mouth of jar. Fasten lid. Process at 10 pounds pressure (240° F.) pint jars—30 minutes and quart jars—40 minutes.

NOTE: Ask your 4-H Canning Leader for directions on the raw pack method of canning vegetables.

NUTRITION

Learn to serve your canned foods in tempting and attractive meals. Eat fruits and vegetables because they are good and because they give you vitamins and minerals your body needs.

Eat five servings of fruits and vegetables each day. You need one serving of a food that is a good source of Vitamin C or two servings of a fair source of Vitamin C. You need Vitamin C for healthy gums and body tissues. Vitamin C also helps in keeping blood vessels strong and healthy.

You need one serving of food high in Vitamin A each day. Green and yellow vegetables are a good source of Vitamin A. You need this vitamin for growth, normal vision, and healthy condition of skin and other body surfaces.

The three other servings you need each day may be of any vegetable or fruit. They may be additional servings of fruits and vegetables high in Vitamin A or Vitamin C, or they may be apples, bananas, beets, or potatoes.

Third Year Report

(month) (day) (year)

(day)

(year)

(age)

(community 4-H club)

(county)

(name of parents)

(years in club work)

I have carried a canning project _____

A. SUMMARY OF CANNING ACTIVITIES

Answer These Questions:

1. What fruits are used

24. The above information is true and correct to the best of my knowledge and belief, and I am not aware of any information that would cause me to believe that this information is false or misleading.

2. Why is it necessary to select fruit at the right stage of maturity? _____

3. What ingredients are needed to make jelly? _____

4. What is pectin? _____

5. Give the home test for finding out how much pectin is in jelly stock (or fruit juice). —

6. Why is it necessary for jelly stock to be at room temperature to make the pectin test?

7. Why is it recommended that you make and can jelly stock? _____

8. How do you process jelly stock? _____

9. How do you tell when jelly is done? _____

10. How many jars of food canned alone did you exhibit? _____

- Where? _____

11. Did you prepare any meals using food canned in your canning project? _____

12. Did you show any other 4-H member how to do something you learned in your canning

- project? _____ What did you show _____

B. List all foods you

Canned Alo

Food	Canned Alone	Helped Can
------	--------------	------------

C. Write a story of what you did and learned in your canning project.

D. I have checked this 4-H record and found it to be satisfactory.

Date _____

Signed _____

4-H Canning Leader

Fourth Year Report

Answer These Questions:

- B. List all foods you canned or helped can in this form.

[illegible]

Totals

(When project is completed, cut out this page and give to your Canning Leader.)

C. Write a story of what you did and learned in your canning project.

D. I have checked this record and found it to be satisfactory.

Date _____

Signed _____

Local 4-H Canning Leader

CANNING

Year by Year Summary

(Fill out this summary when you complete your canning project. Do this BEFORE you submit your record page to your canning leader. Copy this information from your record page.)

Third Year _____

(Date project completed)

- 1) Did you answer all questions? _____
- 2) Total number of quarts canned alone. _____
- 3) Total number of quarts you helped can. _____
- 4) Grand total (add No. 2 and No. 3). _____
- 5) Did you complete your project and submit it to your Canning Leader? _____
- 6) Did you write a story of your canning project? _____

Signed _____

Fourth Year _____

(Date project completed)

- 1) Did you answer all questions? _____
- 2) Total number of quarts canned alone. _____
- 3) Total number of quarts you helped can. _____
- 4) Grand total (add No. 2 and No. 3). _____
- 5) Did you complete your project and submit it to your Canning Leader? _____
- 6) Did you write a story of your canning project? _____

Signed _____



I PLEDGE:

My Head to Clearer Thinking:
My Heart to Greater Loyalty:
My Hands to Larger Service: and
My Health to Better Living for
My Club, My Community, and My Country.

The Club Motto:

"To Make the Best Better"

The 4-H Club Colors

Green and White

