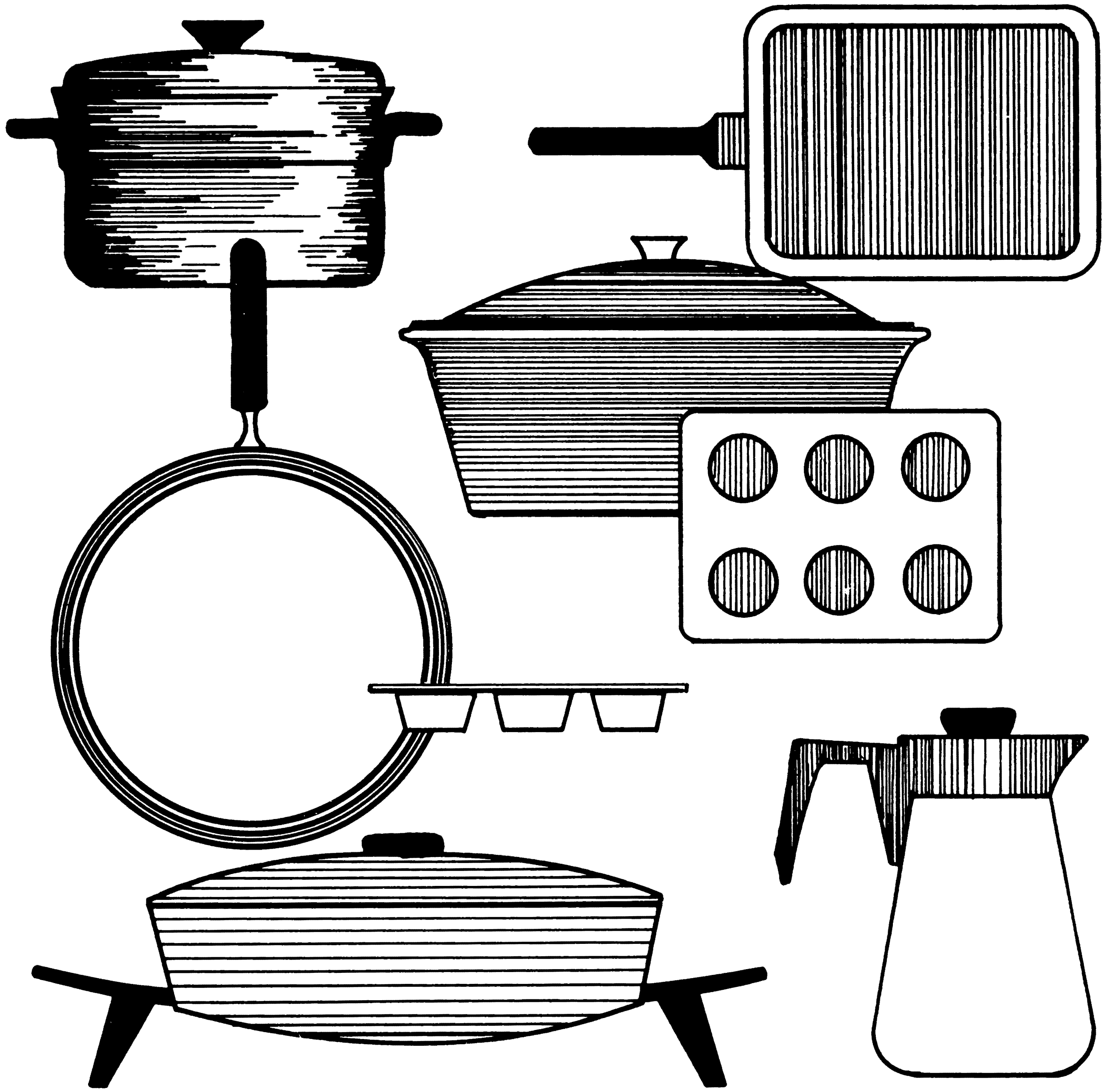
4-H
PROJECT
HOME
MANAGEMENT
MEMBERS'
GUIDE

THE MAD, MAD WORLD OF POTS AND PANS



Extension Division
Virginia Polytechnic Institute
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In This 4-H Project Book

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This project has been adapted by Janice Woodard, Extension Specialist, Home Management, with permission from a Special 4-H Publication of the same name by Ruth Radcliffe, Home Management Specialist at North Dakota State University, Fargo, North Dakota.

The author also expresses appreciation to Kathryn Philson of the faculty of the College of Home Economics at Virginia Polytechnic Institute and State University who assisted in the preparation of this project.

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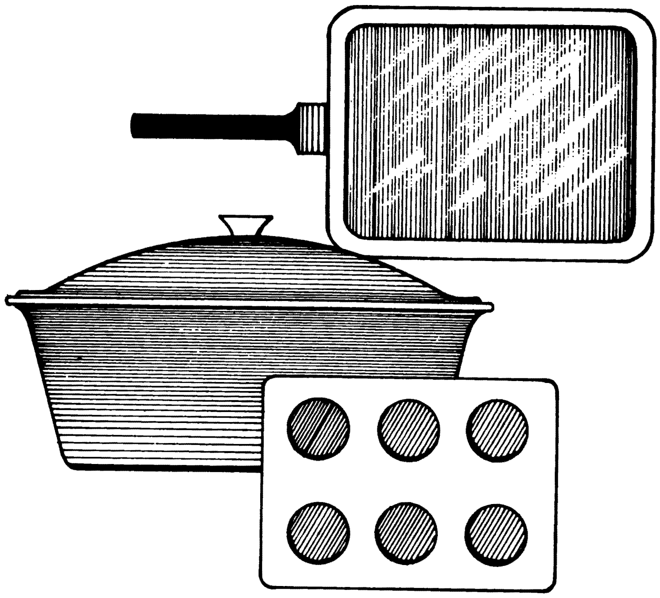
THE MAD, MAD WORLD OF POTS AND PANS



Decisions, decisions...always decisions! In selecting cookware, we are faced with such variety, ranging from the shiny metal pot to the bright red skillet, that making a wise decision often presents a problem.

The kind of cookware you select is of great importance because of the changes taking place in the equipment and prepared foods industries. For example, metal pans cannot be used in electronic ovens. Aluminum pans and stainless steel pans clad with aluminum or copper perform better than others on surface burners or having automatic temperature controls. The packaging of frozen foods in plastic bags to be dropped into a pot of boiling water may lessen the importance of nonstick coating on the inside of pans.

This project is designed to help you learn how to select and store cookware.

COOKWARE

The term cookware refers to both top-of-range and oven utensils. These are made from materials including aluminum, stainless steel, iron, steel, copper, glass and glass ceramic. Although the same materials continue to be used, many other changes have taken place in the world of pots and pans. There are many new shapes and styles, a variety of finishes inside and out, and improved performance.

Whatever cookware is your favorite, the matter of selection boils down to the fact that a good pan is one that gives good heat conduction, is easily cleaned, and withstands direct heat without undue warping.

CHARACTERISTICS OF A GOOD PAN

- Made of a thick, durable, non-warping material.
- Made of a material that heats quickly and evenly, and holds heat well on low temperatures.
- Material and construction features permit easy cleaning.
- Wide, flat bottoms; wide, smooth, rounded corners; straight sides.
- Heat-resistant, sturdy handles large enough and placed to give good balance to the pan.
- Handles that do not conduct heat, and screws and metallic fasteners that are recessed to prevent burns.
- Tight-fitting lids that prevent excessive escape of steam.
- Size to fit family needs.

MATERIALS

Cooking performance, durability and ease of cleaning depend primarily on the material and its quality. No one material is best for all pans. Each material has its strength and its weaknesses. You must decide which qualities you prefer. Remember, even heat conduction and ease in cleaning are first thoughts in cookware selection. Use the following charts as guides in choosing materials to best meet your needs.

Material	Characteristics	Special Use and Care Guides
Aluminum	Light and durable with silver-like luster. Quick and even heat conductor. Will not rust. Discolored by alkaline foods and mineral water. Pitted by food acids and salt (performance not affected, only appearance). Sheet aluminum is hard and durable but, if thin, dents easily. Cast aluminum is heavier and more porous than sheet aluminum; may break. Snug-fitting covers to minimize vapor loss.	Remove burned-on foods in uncoated pans by lightly scouring with soap-filled steel wool pads or soaking in warm water. Rinse in hot water and dry. Stains which are caused by minerals in water or vegetable residues sometimes appear. To remove them, boil a solution of 1 to 2 tablespoons of cream of tartar to each quart of water in the pans for 5 to 10 minutes. Then lightly scour with a soap-filled pad to restore the shine. Also, cooking acid foods such as tomatoes or rhubarb, will remove the stains without affecting the cooked foods.

Heat-resistant glass	Holds heat well. Unaffected by acid foods and alkalis. Will break with extreme temperature changes or if dropped. Use only for oven cooking unless marked for top-of-the range use. Set oven 25° lower than for metal pans.	Remove burned-on foods by soaking the pan in warm water to which baking soda has been added -- 2 tablespoons of soda to 1 quart of water; or rub with plastic scouring pads.
Iron	Heats evenly and holds heat well. Cast iron more brittle, but holds heat better than sheet iron. Will rust unless treated. Porous-must be seasoned. May discolor from acid foods.	To remove stuck foods use soap-filled steel wool pads. May need to rub pan with unsalted fat before using after it is cleaned. Re-season when necessary by rubbing inside thoroughly with unsalted fat and heating slowly in a moderate oven (350°F) for several hours. Dry thoroughly after washing to prevent rust spots. Washing in a dishwasher will remove the seasoning.
Stainless Steel	Resistant to food alkalis and acids. Resistant to pitting. Easy to clean. Darkened by high heat. Tends to get hot spots unless combined with copper or aluminum.	To remove burned-on foods, soak and wash in hot sudsy water. If spots are stubborn, lightly scour with a plastic or soap-filled steel wool pad or a stainless steel cleaner. After much use, a mottled, rainbow like discoloration may develop on the interior surfaces. To remove, use a stainless steel cleaner.

A.	Copper-clad stainless steel	Copper-clad bottoms give better heat conduction. Copper bottoms require care to keep bright.	Follow instructions for stainless steel. Clean copper bottoms with: -Vinegar or lemon juice and salt with a fine (000) steel wool. -A commercial copper cleaner.
B.	Stainless steel with copper core (may be referred to as "heat lined" or "tri-ply")	Copper core gives better heat conduction than stainless steel used alone.	Use same instructions as for stainless steel.
C.	Aluminum-clad stainless steel	Aluminum bottom or exterior gives better heat conduction than stainless steel used alone.	Follow aluminum instructions for cleaning exterior surfaces. Follow stainless steel instructions for cleaning interior surfaces.
Glass-ceramic (Pyroceram)*		Can take quick changes of temperatures (cook, freeze, serve) -guaranteed against breakage from temperature changes. No warping, cracking, or crazing. Heavy. Can be used for cooking and serving. Food tends to stick in spots if high heat is used.	Use low to medium heat. Remove stuck foods by soaking in household bleach (follow instructions on bleach bottle). Remove gray marks made by metal utensils by using plastic scouring pad or cleaner powder on damp cloth. Avoid use of metal scouring pads.

*Trademark of Corning Glass Works

*Trade and brand names are used only for the purpose of information and the Virginia Cooperative Extension Service does not guarantee or warrant the standard of the product, nor does it imply approval of the product to the exclusion of others which may also be suitable.

FINISHES

Finishes	Characteristics	Special Use and Care Guides
Porcelain enamel on steel or iron or on exterior of aluminum	Non-porous and easy to clean. Resistant to acids and alkalis. Crazed by sudden change of temperature or chips from hard impact.	For hard-to-remove food, use water solution with baking soda or weak ammonia. Do not use any abrasives--for stubborn spots, rub on baking soda. Clean interior of aluminum pan as usual.
Polyimide	Smooth, shiny coating made of a polymer, a synthetic chemical compound. It can be applied to the outside of cookware. It looks like porcelain enamel. It has good heat stability, impact resistance and flexibility and is not affected by detergents, food and water.	Wash well in hot suds, rinse and dry after each use. This finish can be washed in a dishwasher but any exposed aluminum parts of the pan may discolor. Do not allow grease or food particles to remain on the finish from one use to the next because they will bake onto the surface.
Teflon*	Features non-stick, no-scour clean-up. May discolor at temperatures above 450°F. May stain or scratch with continued use--stains and small scratches do not affect performance. Teflon II* designates coating which offers greater scratch resistance than original Teflon.	Condition finish before using pans for the first time (except tube pan) by rubbing with salad oil. Use no heat. Wash in hot sudsy water after each use to prevent stains. If stains do appear, lighten or remove them by using a special Teflon cleaner or with a solution of 2 tablespoons baking soda, 1/2 cup liquid household bleach and 1 cup water. Boil 5 to 10 minutes; wash; dry and re-condition surface as directed. above.
Anodized aluminum (heavy oxide coating)	Makes exterior aluminum surface stain- and corrosion- resistant. Won't make gray marks on porcelain enamel. Can add color to aluminum--high heat may fade color. Absorbs heat to produce brown, crisp crusts for pies and yeast breads.	Do not use abrasives. Avoid very high temperatures.

*Trademark for DuPont TEF fluorocarbon finish.

WATERLESS COOKERY AND COOKWARE

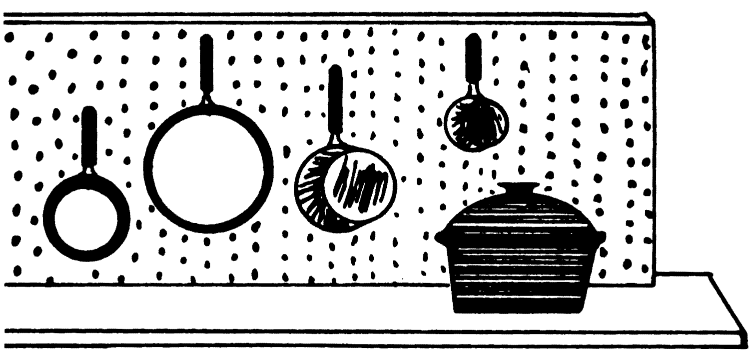
Waterless cookery simply means that great quantities of liquid need not be added. However, some liquid must be present and it can be in the food itself or added by the cook. This method cooks by steam. Using low heat is extremely important to keep vapor losses at a minimum and to keep the food from scorching. Waterless cooking retains the nutritional value of food but does not increase it as might be claimed.

Waterless cooking can be done in any heavy metal pan which has a fairly tight fitting lid that allows only a small amount of steam to escape. It need not be limited to pans labeled "waterless cookware."

HOW MANY PANS?

The number and size of pans needed for top-of-the range cooking vary with family size and one's cooking habits. A frypan and saucepan are two basic pieces. Many families find that a large and a small saucepan, a large and a small frypan, and a Dutch oven are minimum.

Choose a pan whose size is adequate for the family without filling the pan over 3/4 full. Select a pan that fits the diameter of the range unit or burner. Pans larger than the heating surface transfer heat to the porcelain of the range, causing yellowing. Heat is wasted when the pan is smaller than the range unit or burner.



COST OF PANS

High price is no true indication of good quality in a pan. However, good quality pans are generally more expensive. Poor quality cookware that dents, warps, develops hot spots and has to be replaced frequently can be an expensive investment.

Take time to carefully select your cookware. Buy the best cookware for the money by comparing features and prices from different sources. Be sure you know what you are getting. Seek information from reliable sources before buying.

The Initial Cost of Equipment is Affected by:

1. Raw materials.
2. Transportation-distance from source to company.
3. Amount of labor necessary for making the cookware.
4. Manufacturing processes used.
5. Design.
6. Amount of research carried on by the company.
7. Guarantees and replacements.

Beware of Cookware Bargains

Don't be trapped into buying standard sets of cooking utensils. Prospective brides, young, single women often on their first jobs out of school and young women in school are often contacted by zealous cookware salesmen. The salesmen make very tempting offers which often result in a girl signing a contract for a costly set of cookware.

In Virginia there is a 72 hour "cooking-off" period during which the buyer can cancel a sales contract signed in her home if the seller does not have an established place of business within 75 miles of the place where the sale was made. Otherwise, at the present time there is no way in which you can be released from the contract. So whether you do or do not want the set of pots and pans, you signed for them, and you will be paying for them even if you can't afford them.

A "premium" may be offered which means that the asking price for the cookware has been set very high. It is usually so high that it allows the salesmen to offer a substantial "discount" in money or a premium when the prospect hesitates to sign at the commonly high door-to-door prices. For example, a 6-place setting of dishes will be offered at no extra cost. If the customer still seems hesistant, glassware and silver might be offered in addition to the cookware and dinnerware. For those who have already bought dishes, glassware and silverware, this would not be a good buy.

You can usually buy the cooking pans you need at lower cost at hardware or department stores than from door-to-door salesmen.

Buying a set of all one type of cookware may not suit your needs. You may prefer to have cookware made from different materials. It is wisest to buy a set of cookware only when you will use regularly all the pieces in the set. Cookware used seldom is expensive to buy and to store.

GUIDES FOR BUYING

Helpful information for buying cookware is available from various sources, such as catalogues from mail-order companies, magazine articles, Extension bulletins, equipment books and advertisements.

Do not neglect the experiences that neighbors or friends have had with various types of cookware.

STORAGE

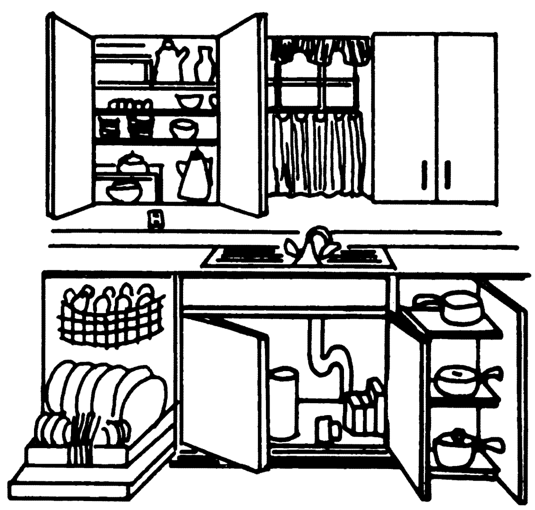
A good guide in storing utensils is to place them at the center where they will be used first. All kitchens basically are divided into three work centers: Mix, Sink and Cook-Serve. If a pan will be used at more than one center frequently, especially in a large kitchen, consider having duplicate pans.

Store utensils so they will be easy to see and reach. Keep frequently used pans most accessible.

These drawings illustrate convenient cookware storage.

The Mix Center

The Sink Center



SUMMARY

Compare prices and quality features of cookware at several sources before buying.

Check information on cookware before buying-know what you are getting.

Buy only the pieces of cookware you need. Be sure they are made by a well-known manufacturer and purchased from a well-established dealer.

Buy pans the right size for your range unit.

Buy one piece of a particular type of cookware and try it before investing money in several pieces. You may prefer to have cookware made from different materials.

Pans should be made from a gauge material heavy enough to prevent warping or denting.

For versatility consider pans with handles that will withstand oven temperatures or which may be easily removed to convert the pan to a casserole.

Use the heat setting recommended for your cookware. High heats may darken or cause hot spots to develop in some materials.

Cool cookware before placing in water; wash with mild detergent; rinse and dry thoroughly. Strong detergents may discolor some metals.

Select the best pan for the purpose. Use and care for it as recommended by the manufacturer.

If metal cookware is washed in a dishwasher, place it so that the detergent is thoroughly dissolved in water before it gets to the cookware. Alkaline detergent will darken aluminum and copper cookware.

THINGS TO DO

4-H Project Requirements and Suggestions

This project may be more interesting and stimulating if completed in a relatively short period of time -- 3 to 6 weeks. The project will supplement or complement 4-H foods and nutrition projects.

Complete at least 5 of the following suggestions. Do more than 5 if you have time. Write down what you do on the page for reporting which follows. You may work on this project with a 4-H group or as an individual 4-H member.

1. Take a trip to one or more stores to look at cookware. Read the labels to see the kinds of information that are given about the cookware.

2. Make a chart on a piece of notebook or typing paper comparing the different types of materials used for cookware. (Give information in your own words.) Compare cost, characteristics, use, and care.

3. Perform this experiment with layer cake pans of the same size. Choose one cake pan which has a shiny finish and one which is dark and dull.

   Using a white cake mix, divide the batter between the two pans and bake at the same temperature for the time recommended on the box of mix.

   After removing the cakes from the pans, examine the bottom of each cake. Which cake is browner? What does this show you regarding the difference in shiny and dull finishes for baking?

4. Perform this experiment:

   Use 1 cast iron skillet and 1 cast aluminum skillet of the same diameter. Lightly and evenly grease and flour the inside bottom of each skillet.

   If you are using an electric range, let the unit get red before using. If you use a gas range, turn the gas on high after you place the pan on the burner.

   Using one skillet at a time, place it on the unit or burner and keep track of how long it takes to brown the flour in the skillet and how evenly it browns. After the flour is well browned, remove the skillet from the unit or burner and draw a diagram on a piece of paper of the pattern of brownness.

   Wash the skillets after they have cooled to avoid warping them. In which skillet did the flour brown first? In which skillet did the flour brown most evenly? What does this show you about the ability of aluminum and iron to conduct heat?

5. Give an illustrated talk at your 4-H Club meeting or other group about the characteristics of a good saucepan.*

6. Give an illustrated talk at your 4-H Club meeting or other group about the characteristics and special use and care guides for the 7 main materials used for cookware: aluminum, heat-resistant glass, iron, copper-clad stainless steel, stainless steel with copper core, aluminum clad stainless steel and glass-ceramic.*

7. Give an illustrated talk at your 4-H Club meeting or other group about non-stick finishes on cookware, telling about the advantages, limitations and care required.*

8. Give an illustrated talk at your 4-H Club meeting or other group about the sources of information for buying cookware.*

9. Give an illustrated talk at your 4-H Club meeting or other group on any other aspects of cookware.*

10. Select for yourself or help someone select at least one piece of cookware, considering use, money, and time. Write down what facts you thought about, what the final choice was, and why.

11. Rearrange the cookware storage at home.

    As you decide where to store cookware, ask yourself these questions:

    a) Where would you store a saucepan to cook vegetables in?
    b) Where would you store frypans?
    c) Where would you store casseroles?
    d) Where would you store pie pans?
    e) Where would you store cookie sheets?
    f) Where would you store a kettle to cook spaghetti in?

    Describe what you did and why.

12. Take a look at the cookware you now have at home.

    a. Clean and restore the pans that need it. Describe what methods you used.
    b. Look for cookware that is very warped or worn. Work on plans to replace it.

13. Do any other activities about selecting and caring for cookware.

* Unless for 4-H Contest - no limitation on time.

Reporting What You've Done

THE MAD, MAD WORLD OF POTS AND PANS

4-H Home Management Project

______________________, 19 ______

Name ____ Age ______

Address ____

County-City ____

This is my ____________ year in 4-H.

1. Describe in the space below the kinds of cookware you saw at one or more stores. Explain briefly the kinds of information that are given about the cookware. (Attach a separate sheet of paper if needed to complete answer.)

2. Attach a copy of the chart you made to compare the different types of materials used for cookware.

3. In the experiment with baking pans of shiny and dull finishes:

Which cake is browner -- the one in the shiny pan or in the dull pan?

____

What did this experiment show regarding the difference in shiny and dull finishes for baking? ____

____

4. In which skillet did the flour brown first? In which skillet did the flour brown most evenly? What does this show you about the ability of aluminum and iron to conduct heat?

____

____

5. Did you give any illustrated talks about cookware? If yes, list the topics? _____

____

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6. In selecting a piece of cookware for yourself or someone else, what facts did you think about? What was your final choice and why?

7. Describe what you did and why, as you rearranged the cookware storage at home.

8. Take a look at the cookware you have at home:

   a. Describe what methods you used to clean and restore pans.

   b. Look for cookware that is very warped or worn. Describe any plans you have for replacing these pans.

Give one completed record to your 4-H project leader when requested.

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