ABSTRACT

This is a series of five modules, each of which consists of six 3-hour classes in food preparation for nonmanagement personnel from institutional food services. Topics of the modules are breads and breakfasts, meats, vegetables and salads, extended meats and meat alternatives as sources of protein, and desserts. Included in each module are management of work, adjusting and following standardized recipes, preparing and proportioning food, the nutritional contribution of food, caring for and operating equipment, safety, sanitation, and motion economy. Also provided are guidelines for preparing and presenting the lessons and student handouts. The lessons are designed for use in a course involving lecture, demonstration, actual hands-on class activities, and audio-visuals. (MN)
This is a series of five modules each consisting of six three-hour classes in food preparation for non-management personnel from institutional food services. Included in each module are management of work, adjusting and following standardized quantity recipes, preparation and portioning food, nutritional contribution of food, care and operation of equipment, safety, sanitation and motion economy. Students will taste and score the finished products against standard characteristics of high quality foods. The textbook is Food for Fifty, 6th Ed., West, Schugart and Wilson, John Wiley and Sons, 1979.

Overall goals are to:

1. Develop basic manipulative skills related to food preparation.
2. Develop an understanding of the basic principles of science and mathematics involved in high quality food preparation.
3. Demonstrate high standards of cleanliness and personal hygiene.
4. Demonstrate proficiency in artistic principles basic to food preparation.

There are no prerequisites, but some experience in quantity food production is desirable. Presentation of the course will be by lecture, demonstration, actual "hands-on" class activities, and audio-visuals. Handouts will be distributed at most sessions. Participants will become more aware of their vital and valuable role in nutritional care by providing nutritious and appealing meals to their clients as an aid to their well-being.

The five modules are:

**Breads and Breakfasts**

The function of ingredients, preparation of quick breads, yeast breads and breakfast menu items. Care and use of mixer, proof box and convection oven.

**Meats and More**

Preparation of beef, pork, fish, and poultry, using principles of moist heat cookery and dry heat cookery. Included are main dish salads and variety meats. Care and use of broiler, grill, oven, deep fat fryer, braising pan and meat thermometer.

Developed cooperatively by Occupational Home Economics, Kansas Department of Vocational Education, Wichita Area Vocational Technical School, and Members of the Kansas Dietetic Association.
Vegetables and Salads with Pizzaz

Proper handling and storage of fruits and vegetables. Preparation of vegetables using a variety of cooking methods. Experiments to show effect of cooking time and acid on vegetables. Preparation of fruit salads, gelatin salads, vegetable salads, salad bars and salad dressings; garnishes. Care and use French knife, pastry tube, shredder and slicer attachments for mixer and electric chopper.

Protein Potpourri


The Happy Ending

Fruit desserts and fruit fillings; puddings, pies, cookies, cakes and icings, cobblers, dessert specialties such as crisps, Betty, cream puffs, meringue shells. Comparison between mix cakes and those made from scratch. Use and care of scale, weighing and measuring ingredients.

This new series of evening classes for non-management food service employees is being offered in Wichita at Central Vocational Building, 324 No. Emporia, this year. Students will meet in the cafeteria, 5 to 8 p.m., one evening per week for six weeks. A $12.00 fee per module covers tuition and materials. Classes are limited to 15 students.

<table>
<thead>
<tr>
<th>Date</th>
<th>Module</th>
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</thead>
<tbody>
<tr>
<td>September 23, 30-</td>
<td>Breads and Breakfasts</td>
</tr>
<tr>
<td>October 7, 14, 21, 28</td>
<td></td>
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<tr>
<td>November 11, 18, 25-</td>
<td>Meats and More (Meat Cookery)</td>
</tr>
<tr>
<td>December 2, 9, 16</td>
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<tr>
<td>January 6, 13, 20, 27-</td>
<td>Vegetables and Salads with Pizzaz</td>
</tr>
<tr>
<td>February 3, 10</td>
<td>Protein Potpourri (Extended Meats &amp; Alternates)</td>
</tr>
<tr>
<td>February 17, 24-</td>
<td>The Happy Ending (Desserts)</td>
</tr>
<tr>
<td>March 3, 10, 17, 24</td>
<td></td>
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<tr>
<td>April 1, 7, 21, 28-</td>
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<tr>
<td>May 5, 12</td>
<td></td>
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</tbody>
</table>

Please indicate class for which you are enrolling and send to Dorothy Wise, R.D. Coordinator of Food Service Supervision, Central Vocational Building, 324 North Emporia, Wichita, Kansas 67202 Phone 268-7825.

Tuition and fees: $12.00 per module, payable to Wichita Area Vocational School.

Amount enclosed __________________ Name ____________________________

I am employed at __________________ Home Address __________________

Work Phone __________________ Home ph. __________________

An Equal Employment/Educational Agency
COOKS

We may live without poetry, music and art
We may live without conscience and live without heart.
We may live without friends; we may live without books
But civilized man cannot live without cooks.
He may live without books; what is knowledge but grieving?
He may live without hope; what is hope but deceiving?
He may live without love; what is passion but pining?
But where is the man who can live without dining?

Owen Meredith (Sir Edward Lytton)
1831-1891
KANSAS DEPARTMENT OF VOCATIONAL EDUCATION
OCCUPATIONAL HOME ECONOMICS

FOOD SERVICE EMPLOYEE SHORT COURSES

SANITATION AND DRESS CODE

1. Hair nets or caps are to be worn, covering all hair.
2. A clean uniform, lab coat or large apron.
3. Enclosed, low-heeled shoes with non-skid soles are to be worn with stockings, footlets or anklets.
4. Nails are to be short and clean, with no colored nail polish.
5. Avoid heavy excessive jewelry.
6. Wash hands thoroughly at hand sink before working in kitchen.
7. Utensils are to be washed according to proper ware-washing procedures.
8. Work surfaces and equipment are to be sanitized using the method recommended by instructor.
9. All food and equipment are to be handled in a safe sanitary manner.
10. Cooking spoons and spatulas are not to be used for tasting. Use a clean spoon or fork for each taste.
11. No food material is to be discarded in sinks that have no disposal units. Place refuse either in disposal or lined refuse containers.
12. Dry flour must not be scraped into any sink.

JUDGING FINISHED PRODUCTS

1. Display food product with card indicating name of product and any variation from standard procedure used.
2. Select proper score sheet for product.
3. Take small portion using proper serving utensil onto a small paper plate, and taste food with disposable spoon or fork.
4. Record your comments on score sheet. Discuss after everyone has silently evaluated product.
5. Store leftover food according to safe, sanitary food handling procedures.
Students will be divided into 4 groups. The following duties will be rotated within each group, so that each student will have experience in all areas.

A. PREPARATION (2 persons)
1. Wash hands thoroughly at hand sink.
2. Get work assignment for your group from instructor.
3. With tray and/or cart gather equipment and ingredients.
4. Weigh or measure all ingredients in recipe.
5. Combine ingredients and cook according to specific directions.
6. Clean your work area and put away unused ingredients.

B. EVALUATION
1. Wash hands thoroughly at hand sink.
2. Prepare market order for recipe(s) to be made in next week's class.
3. Distribute to each class member:
   a. Standards of a Quality Product
   b. Score or evaluation sheets.
4. Display finished products for judging and sampling.
5. After scoring of products is completed, store left-over foods according to safe, sanitary food handling procedures. Ask instructor where left-over food is to be stored.

C. CLEAN-UP
1. Wash hands thoroughly at hand sink.
2. Prepare sanitizing solution of one gallon water and one tablespoon chlorine bleach in a plastic container to hold cleaning cloths.
3. Sanitize all work surfaces with the above sanitizing solution and cloth.
4. Prepare pot and pan sink according to the three-compartment ware washing method.
5. Wash utensils and plastic chopping boards and put away in proper place.
6. If used, leave range top, ovens, deep fat fryers, mixers, choppers, slicers, steam tables and other equipment turned off and clean.
7. At end of lab period all sinks are to be cleaned and rinsed, including hand washing sinks.
8. Put cleaning cloths in designated place.
## SANITATION CHECK LIST

<table>
<thead>
<tr>
<th>Work Area</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Does general appearance indicate frequent cleaning of rooms and equipment?</td>
<td></td>
<td></td>
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<tr>
<td>2. Are floors in good repair?</td>
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<tr>
<td>3. Are floor drains clean and odorless?</td>
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<tr>
<td>4. Are walls and ceilings clean and in good repair?</td>
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<tr>
<td>5. Are there any overhead pipes that might leak into food or equipment?</td>
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<td>6. Are doors and windows effectively screened?</td>
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<td>7. Are mats and duckboards clean?</td>
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<tr>
<td>8. Are food preparation areas well lighted?</td>
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<tr>
<td>9. Are all rooms adequately ventilated and reasonably free of disagreeable odors and condensation?</td>
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<tr>
<td>10. Are storage areas and containers cleaned frequently?</td>
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<tr>
<td>11. Are handwashing facilities conveniently located?</td>
<td></td>
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<tr>
<td>12. Is the pest control program effective?</td>
<td></td>
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</tbody>
</table>

### Food Supplies

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are all foods obtained from approved sources?</td>
<td></td>
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<tr>
<td>2. Are all foods protected from contamination?</td>
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<tr>
<td>3. Are containers of food stored off the floor and on clean surfaces?</td>
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<tr>
<td>4. Are all perishable foods kept at the proper temperature?</td>
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<td>5. Are potentially hazardous foods stored at 45° F. or below, or 140° F. or above?</td>
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<tr>
<td>6. Are frozen foods kept at zero to 20° F.?</td>
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<tr>
<td>7. Are potentially hazardous frozen foods thawed in refrigerators at 45° F. or below?</td>
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<tr>
<td>8. Are cereals, starches, flours, sugars, and like products stored in tightly covered containers?</td>
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<td>9. Are containers labeled?</td>
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<tr>
<td>10. Are products such as poisons and cleaning supplies, stored in area completely separate from food storage area?</td>
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<tr>
<td>11. Are coats, shoes and other street clothing stored out of the kitchen?</td>
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</tbody>
</table>

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8
**SANITATION CHECK LIST—Continued**

<table>
<thead>
<tr>
<th>Equipment and Kitchenware</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are all equipment and utensils smooth-surfaced and not readily corrode?</td>
<td></td>
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<tr>
<td>2. Are all utensils and equipment in good repair, i.e., free of breaks, open seams, cracks, and chips?</td>
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<tr>
<td>3. Are kitchenware and equipment surfaces clean to sight and touch?</td>
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<tr>
<td>4. Are there written cleaning procedures and schedules?</td>
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<tr>
<td>5. Are utensils, kitchenware and equipment stored in clean, dry places at sufficient height from the floor, and protected from flies, dust and other contamination?</td>
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<tr>
<td>6. Are proper utensils used to minimize handling foods?</td>
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<tr>
<td>7. Are there adequate facilities for maintaining food at hot and cold temperatures?</td>
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<tr>
<td>8. Is food held on steam or serving tables during the service period only?</td>
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<tr>
<td>9. Are refrigerators equipped with thermometers?</td>
<td></td>
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<tr>
<td>10. Is the food in refrigerators in suitable covered containers?</td>
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<tr>
<td>11. Are wiping cloths clean and used properly?</td>
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<tr>
<td>12. Are food carts cleaned routinely?</td>
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<td></td>
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</tbody>
</table>

**Dishwashing and Pot washing**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are all dishes properly scraped and, if necessary, soaked before washing?</td>
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<td></td>
</tr>
<tr>
<td>2. Are adequate amounts of detergent used?</td>
<td></td>
<td></td>
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<tr>
<td>3. If dishes are machine-washed, are they washed at 140° F–160° F. and rinsed at 180° F. and timed according to National Sanitation Foundation Standards?</td>
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<tr>
<td>4. Is there a thermometer in each tank of the machine?</td>
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<tr>
<td>5. In pot and pan washing sinks is there provision for maintaining rinse water at 180° F.?</td>
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<tr>
<td>6. Is the water changed frequently enough to be clean and hot?</td>
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<tr>
<td>7. If a chemical sanitizer is used are procedures posted and used for maintaining the sanitizing efficiency?</td>
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<tr>
<td>8. Are dishes and pans allowed to air dry?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## SANITATION CHECK LIST—Continued

<table>
<thead>
<tr>
<th>Garbage Disposal</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is garbage removed frequently?</td>
<td></td>
<td></td>
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<tr>
<td>2. Are receptacles and liners nonabsorbent?</td>
<td></td>
<td></td>
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<tr>
<td>3. Are receptacles covered by close-fitting lids?</td>
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<tr>
<td>4. Are receptacles washed when emptied?</td>
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<tr>
<td>5. Is the storage area kept clean?</td>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Water and Ice Supply</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is the supply of hot and cold water adequate?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Are hot water temperatures maintained at required temperature?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Are ice and ice-handling utensils properly stored?</td>
<td></td>
<td></td>
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<tr>
<td>4. Are ice machines properly cleaned?</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Personnel</th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1. Are cleanliness and good health definite requirements for food service personnel?</td>
<td></td>
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</tr>
<tr>
<td>2. Is the wearing of clean uniforms, hairnets or caps required?</td>
<td></td>
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<tr>
<td>3. Is adequate instruction given to personnel concerning the handling of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food with the proper utensils?</td>
<td></td>
<td></td>
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<tr>
<td>Silverware and cups?</td>
<td></td>
<td></td>
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<tr>
<td>Glassware?</td>
<td></td>
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</tr>
<tr>
<td>4. Is the importance of frequent handwashing stressed?</td>
<td></td>
<td></td>
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<tr>
<td>5. Are suitable hand cleaners and paper towels provided?</td>
<td></td>
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</tr>
<tr>
<td>6. Are dressing rooms and lockers kept clean?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Adapted from Food Service Manual for Health Care Institutions, American Hospital Association.*
WARE-WASHING PROCEDURE

1. Rinse and/or soak soiled utensils immediately after use.
   a. Greasy pans:
      (1) Wipe pans with paper toweling to absorb grease.
      (2) Put detergent in the pan with hot water for soaking.
   b. Sugar sirups or similar:
      Soak in hot water.
   c. Protein foods:
      (1) Soak in cold water.
      (2) Rinse egg beaters in cold tap water immediately after use.
   d. Starchy foods:
      Soak in cold water.

2. If a food scorches or burns in a cooking pan, remove pan immediately from heat:
   a. Transfer food quickly into another container.
   b. Add hot water to the scorched utensil, and place the utensil over low heat for 10-15 minutes.

3. Any large pieces of food material which have soaked free from the cooking pan should be placed in the garbage.

4. Use rubber or plastic spatula or paper toweling to remove loosened food material from utensils.

5. Use the three-compartment sink method for washing utensils. See procedure.

3 Compartment Method

Pre-rinse utensils to remove food particles so as to keep the wash water as clean as possible. Pre-soak if necessary.

<table>
<thead>
<tr>
<th>Drainboard</th>
<th>Compartment I</th>
<th>Compartment II</th>
<th>Compartment III</th>
<th>Drain-Board</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stacked-Pre-Rinsed Utensils</td>
<td>Wash</td>
<td>Rinse</td>
<td>Sanitize</td>
<td>Air Dry</td>
</tr>
</tbody>
</table>

1. Wash is hot water (110°-120° F.) with an effective detergent in proper concentration. Water should be changed frequently, every 30 minutes of constant washing.

   ____ cup detergent (_______) in ____ gal. water in each compartment.

2. Rinse in clean clear hot water. Change water frequently.

3. Sanitize by submerging in hot water (180° F.) for 30 seconds or use a chemical as directed and approved by the State Department of Public Health. Wire baskets are essential for immersing dishes in 180° F. water. The water must be changed when cloudy.

4. Air-dry on a drainboard. Dishtowels should not be used.

5. Inspect and store on clean, dry, protected shelves.
SAFETY IS NO ACCIDENT

Accidents do not just happen; they are caused by unsafe conditions and unsafe acts which result from carelessness, lack of attention or concentration, moving too fast, or ignorance.

Every facility should have a SAFETY CONTROL PROGRAM in order to prevent or minimize accidents and injuries: Such a program consists of:

1. A commitment to safety as evidenced by established policies and procedures.
2. An organized safety committee which meets regularly to fulfill its responsibility for the safety control program.
3. Reports and investigations of all accidents.
4. Well-maintained equipment and good housekeeping practices.
5. Established safety rules and standards.
6. Specific in-service training program concerning safety.
7. Routine inspections by food service supervisor to identify unsafe conditions, followed by corrective action.

KITCHEN SAFETY

Kitchen safety practices that should always be followed:

1. Wear trim dress—no dangling jewelry.
2. Provide a well-stocked first aid kit.
3. Provide stair rails where necessary.
4. Learn the proper way to lift. Do not lift very heavy objects.
5. Use proper tools for the job—i.e., can opener to open cans, not a knife.
6. Practice good housekeeping at all times. Remember — a place for everything and everything in place.
7. Remove boxes and packing material daily.
8. Keep trash in covered metal containers.
9. Hang up mops where air can circulate.
10. Tack down or replace loose linoleum.
11. Keep floors dry.
12. Remove spills from floor immediately.
13. Use non-slip wax.
14. Keep cupboard doors closed—or have sliding doors.
15. Keep guard covers in place over gears to grinders, etc.
16. Do not attempt repairs on moving machinery such as mixers, grinders, etc.
17. Always use wooden stomper for feeding food in grinder.
18. Keep spatulas away from revolving beaters.
19. Stop mixers before attempting to remove food.
20. Completely enclose fans and secure them.
22. Do not pick up broken glass with hands. Drain dish tanks to remove. Throw out broken jars, etc., immediately.
23. Do not use sharp edged coffee cans, etc., to dip soap, etc.
24. When using a knife, cut away from you. Knives should be stored in a knife holder, not a drawer.
25. Wash knives separately.
26. Remove covers completely when using can opener. A half-open can could injure someone.
27. Use a wedge type opener for cans of juice and other liquids.
28. Stand to one side of gas oven to light it.
29. Keep utensil handles away from the front of stove.
30. Keep utensil handles away from burners and oven pilot.
31. Use only dry pot holders.
32. Tip lid away from you to prevent steam burn in observing item being cooked.
33. When deep fat frying, be sure pan is deep enough—do not fill closer than 3" to top of utensil—have food items as dry as possible.
34. Keep hoods and stoves free of grease.
35. Clean grease filters routinely as needed.
36. Keep appliance cords in good condition.
37. Do not have appliance cords where they can be tripped over.
38. Use dry hands when plugging in electric appliances.
39. Repair faulty switches.
40. Disconnect electric appliances when not in use.
41. Do not overload electrical circuits—be sure to have the proper fuses.
42. Have a good fire extinguisher handy (not the carbon tetrachloride type) and know how to use it. Check with the fire marshal.
43. Keep fire exits clear.
44. Do not store pot holders on stove near pilot.

PORTION SCALES
WEIGHING AND MEASURING PROCEDURES

1. If possible, weigh, rather than measure ingredients other than liquid.

2. When ingredients are to be measured, use standard measuring utensils.

3. Select the measure that will enable you to do the job with the least number of operations. For example, when a quart of liquid is called for, use a quart measure instead of measuring four times in a one-cup measure.

4. To measure fractions of a cup, use individual measures of 1/4, 1/3, and 1/2 cup. Likewise, use measures of 1/4, 1/2 and 1 teaspoon and 1 tablespoon for these amounts.

5. To measure whole dried eggs, sift and lift lightly into measure. Level off top.

6. To measure nonfat dry milk, first stir with spoon, then lift lightly into the measure and level off top with edge of spatula.

7. Sometimes it is possible to obtain the desired amount of such foods as butter or packaged cheese by cutting off a half or a fourth of the block.

8. Portion scale used for:
   1. Sliced meats
   2. Cheese
   3. Bologna

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INFORMATION INCLUDED IN A STANDARDIZED RECIPE

1. Appropriate title for recipe.

2. Yield of the recipe—in number of servings and/or volume or weight of mixture.

3. Size of such servings—in volume, weight, or size of piece.

4. The amount of Meat/Meat Alternate and/or fruit or vegetable which each serving provides toward meeting the Type A lunch requirement.

5. Size of pan used, especially for baked or congealed items and if pan size is of particular importance to the quality of the finished product or to the way in which the product is portioned or both. Example: for Biscuits no pan size is given. However, for a recipe such as "Jellied Cottage Cheese and Vegetable Salad" the number of pans to use as well as size of pans are given because this information is essential to obtaining the size serving specified.

6. Ingredients listed in the order used.

7. Type or form of ingredients to use is clearly specified, such as all-purpose flour, melted fat, chopped onion, etc.

8. Quantity of each ingredients given in both weight and volume.

9. Clear, precise, instructions for the method of preparing and combining the ingredients.

10. Clear, precise instructions for cooking method, time and temperature.

11. Clear, precise instructions for size or portion and for method of service if the item prepared requires this additional information.

GENERAL RULES TO FOLLOW TO GET THE BEST RESULTS FROM RECIPES

I. Read recipe to be used a day in advance.
   A. Check to see if any advance preparation is required.
   B. Check to see that all ingredients are on hand.
   C. Check to see that all equipment called for is available.

II. Study recipe carefully.
   A. Note number of portions recipe will give or yield in weight or volume.
   B. Note size or portion.
   C. Adjust amounts for the number of portions needed and the desired size of portion. For example: Cold Slaw yields 100 - ½ cup portions or 200 - ¼ cup portions.
   D. Check ingredients to see if any need preparation before weighing or measuring and, if necessary, figure amounts needed.
   E. Be sure meaning of abbreviation is understood.
   F. Read directions carefully.

III. Put recipe card in some kind of protective cover.

IV. Assemble ingredients and equipment. Use tray or cart.
   A. Use exact amounts called for. Weigh or measure accurately.

VI. Follow directions exactly.

VII. Make pertinent comments on recipe card after it is used. Check and comment on size of servings, etc.

VIII. When dried eggs or nonfat dry milk are used in recipes calling for fresh eggs and milk, make adjustments in recipe and note on card.

IX. When substitutions are necessary, use correct equivalents.

## Temperatures Used in Food Preparation

### Oven Temperatures

<table>
<thead>
<tr>
<th>Temperature</th>
<th>°F</th>
<th>°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely hot oven</td>
<td>525</td>
<td>274</td>
</tr>
<tr>
<td>Very hot oven</td>
<td>500</td>
<td>260</td>
</tr>
<tr>
<td>Hot oven</td>
<td>475</td>
<td>246</td>
</tr>
<tr>
<td>Moderate ovens</td>
<td>450</td>
<td>232</td>
</tr>
<tr>
<td>Slow oven</td>
<td>425</td>
<td>218</td>
</tr>
</tbody>
</table>

### Deep-fat Frying

- 395°F (201°C)
- 375°F (190°C)
- 350°F (177°C)

### Sugar Cookery

- 338°F (170°C)
- 320°F (160°C)
- 310°F (154°C)
- 250°F (120°C)
- 266°F (130°C)
- 248°F (120°F)
- 239°F (115°F)
- 234°F (112°F)

### Water Temperatures

- Boiling water: 212°F (99°C)
- Simmering range: 185°F (85°C)
- Scalding: 149°F (65°C)
- Lukewarm: 104°F (40°C)

### Changes in Foods

- Temperature Effect on Bacterial Growth/Survival
- 165-140°F (74-60°C) Prevents growth; allows survival.
- 140-120°F (60-49°C) Some growth occurs; many bacteria survive.
- 120-60°F (49-15°C) Danger Zone:
  - 1) Bacteria grow rapidly.
  - 2) Toxins produced by some bacteria.
- 60-40°F (15-4°C) Some bacterial growth occurs.
- 40-32°F (4-0°C) Slow growth of bacteria causing food spoilage.
- 32-0°F (0° to -18°C) Some bacteria survive freezing.
- No growth at low temp.
- 140-40°F (60-4°C) Critical temp. range for food poisoning bacteria.

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HAND TOOLS AND UTENSILS
UNIT II

INFORMATION SHEET

I. Cutting tools
A. Boning knife - To bone meat

B. Butcher knife - To cut steaks

C. Butcher steel - To maintain the edge of a knife

D. Hand stone - To maintain the edge of a knife
E. Cleaver

To chop bones

F. Chinese butcher cleaver - To chop bones

G. French knife - To slice, chop, mince, and dice

H. Ham slicer - To slice ham

I. Paring knife - To pare fruits and vegetables
INFORMATION SHEET

J. Pastry wheel - To cut all types of flat dough

K. Pie or cake knife - To cut and serve pies and cakes

L. Vegetable peeler or parer - To peel or pare outer skin of fruits and vegetables

M. Roast beef slicer - To slice roast beef

N. Bread knife - To slice bread
INFORMATION SHEET

O. Utility knife - To cut small foods

![Utility knife](image)

P. Egg slicer - To slice eggs uniformly

![Egg slicer](image)

II. Handling tools

A. Food tongs - To pick up and serve foods

![Food tongs](image)

B. Hot cake or meat turner - To turn foods

![Hot cake turner](image)
INFORMATION SHEET

C. Kitchen fork - To hold meat while slicing or turning

D. Ladle
   1. Solid
   2. Perforated

   1. To stir and mix before serving
   2. To dip
      a. Available in portion sizes
      b. Used for measuring
INFORMATION SHEET

E. Melon ball - To cut fruits and vegetables into small balls

F. Plastic scraper - To scrape down bowls

G. Dough cutter -
1. To scrape meat blocks and cutting boards
2. To cut dough

H. Skimmer - To skim grease from foods and liquids
INFORMATION SHEET

1. Kitchen spoon.
   1. Slotted - To serve large vegetables

   ![Slotted Spoon](image)

   2. Solid - To fold, stir, and serve

   ![Solid Spoon](image)

   3. Pierced - To serve small cut vegetables

   ![Pierced Spoon](image)

J. Spatula

   1. Flat - To ice cakes

   ![Spatula](image)
INFORMATION SHEET

2. Offset - To mix, spread, and scrape

K. Sandwich spreader - To spread filling or dressing on bread

L. Rubber scraper - To remove foods from cans and bowls

III. Food preparation tools

A. Box grater - To grate or shred food into small pieces

B. China cap - To strain foods or liquids
INFORMATION SHEET

C. Colander - To strain liquids from foods

D. Strainer - To strain foods

E. Wire whip
   1. French - To whip foods
      (NOTE: This whip is made of rigid wire.)
   2. Piano - To whip foods
      (NOTE: This whip is made of flexible wire.)
F. Hand meat tenderizer - To pound meat to make it more tender

IV. Cooking utensils

A. Bain-marie pans - To store foods

(BNOTE: These are available in various sizes.)

B. Double boiler - To cook foods that scorch easily

(BNOTE: These are available in various sizes.)
C. Sauce pan - To cook small amounts of food on top of range

(NOTE: These are available in various sizes.)

D. Sauce pot - To cook food on top of range

(NOTE: These are available in various sizes.)

E. Sheet pan - To bake foods

(NOTE: These are available in various sizes.)

F. Skewer - To hold food together during cooking
INFORMATION SHEET

G. Stock pot - To cook large quantities of food on top of range

H. Baking pan - To bake foods

I. Roasting pan - To roast meats

J. Steam table pan - To cook and serve
INFORMATION SHEET

K. Egg skillet - To cook eggs

L. Sauté pan - To sauté foods

V. Baking utensils
   A. Flour sifter - To sift flour and sugar
   B. Pastry bag - To hold icing during decorating

(NOTE: These are available in various sizes.)
C. Pastry tips - To make designs with pastry bag

(NOTE: These are available in various sizes.)

D. Pastry brush - to brush on liquids

(NOTE: These are available in various sizes.)

E. Peel - To place and remove pizza from oven

F. Pie or cake marker - To mark pie or cake for portion control

*(NOTE: These are available in various sizes.)*
INFORMATION SHEET

G. Rolling pin - To roll dough to desired thickness

H. Tube cake pan - To cook tube cakes

I. Pie pan - To cook pies or pie crusts

J. Muffin tin - To cook muffins
VI. Measuring devices

A. Liquid measure
1. Cup
2. Pint
3. Quart
4. Gallon

B. Dry measure
1. One to four cups
2. 1, 1/2, 1/3, 1/4 cup
INFORMATION SHEET

C. Disher

D. Measuring spoons

E. Flour scoop
FOOD SERVICE EMPLOYEE SHORT COURSE
Module I- Breads and Breakfasts

LESSON ONE: INGREDIENTS

GOALS: The purpose of this lesson is to:

1. Introduce the participants to the physical plant of the kitchen and work area. Allow participants to be introduced.
2. Give the participant a preview of each of the six lessons in the Breads and Breakfasts Module.
3. Have the participant gain understanding of the properties of ingredients used in breads, and how these ingredients react when combined.
4. Teach the participant to use the correct procedures to measure and weigh food ingredients.

BEHAVIORAL OBJECTIVES: After completing this lesson, the participant should be able to:

1. State where equipment and utensils are stored.
2. Demonstrate sanitary methods of washing and storing equipment and utensils.
3. Demonstrate sanitary methods of cleaning work surfaces.
4. Demonstrate ability to light oven.
5. Clarify with the instructor, through discussion and questions, what will be presented in each of the lessons in this module.
6. State one property of each of the following ingredients: soft flour, hard flour, shortening, sugar, leavening agents, eggs, flavorings, and spices.
7. Demonstrate how to develop the gluten in flour.
8. Recognize the correct measuring and weighing techniques used in quantity food production.

ASSIGNMENTS:

LESSON TWO: QUICK BREADS

GOALS: The purpose of this lesson is for each participant to develop.

1. Knowledge and skill in the preparation of quick breads and the
2. Ability to evaluate a good quick bread product.

BEHAVIORAL OBJECTIVES: After completion of this lesson the participant should be able to:

1. Demonstrate the ability to prepare baking powder biscuits, muffins and date-nut bread loaves.
2. Describe a standard baking powder biscuit.
3. Describe a standard muffin.
4. Describe a standard quick bread loaf.
5. Evaluate a baking powder biscuit.
6. Evaluate a muffin, and evaluate a loaf of quick bread.
LESSON THREE: YEAST BREADS

GOALS: The purpose of this lesson is to:

1. Give the participants the opportunity to prepare and evaluate products leavened with yeast.
2. Enable the student to utilize the principles of yeast bread preparation in quantity cookery.
3. Allow participants to prepare and compare the quality of dinner rolls from a straight dough mixing method and a quick dough products method.
4. Enable each participant to develop and practice the skills that are necessary to produce standard sweet dough products in quantity batches.

BEHAVIORAL OBJECTIVES: After completion of this lesson the participant should be able to:

1. Demonstrate the ability to make quantity adjustment of a standard recipe.
2. Discuss a minimum of five principles of yeast bread preparation.
3. Describe the three most common mixing methods for preparing yeast breads.
4. Define and give examples of products made from: "lean dough" and "sweet dough".
5. List and describe each of the 10 production stages in the preparation of yeast breads.
6. Describe a standard dinner roll.
7. Discuss standards for yeast products made from sweet dough.
   Demonstrate shaping techniques for the following shapes:
   - Knots
   - Lucky Clovers
   - Rosettes
   - Crescents
   - Butterflies
   - Fan Tans
8. Prepare and evaluate dinner rolls using techniques appropriate for quantity cookery.

ASSIGNMENTS:

LESSON FOUR: BREAKFAST EGGS AND MEATS

GOALS: The purpose of this lesson is to develop breakfast egg and meat cooking skills and to acquaint participants with textured vegetable protein breakfast products.

BEHAVIORAL OBJECTIVES: After completion of this lesson the participant should be able to:

1. Demonstrate cooking skills needed to prepare and cook quality breakfast eggs and meats.
2. Demonstrate ability to recognize and describe standard quality breakfast egg products and breakfast meats.
3. Discuss principles of breakfast meat and egg selection and storage.
LESSON FOUR: CONTINUED

4. Evaluate hard cooked eggs, poached eggs, fried eggs, omelets, bacon, sausage, ham.
5. Evaluate TVP bacon, ham, and sausage products.

ASSIGNMENTS:

LESSON FIVE: BREADS AND BREAKFAST ITEMS FROM THE GRILL

GOALS: The purpose of this lesson is:

1. To enable participants to develop the knowledge and skills needed for preparing breakfast items on the grill that results in quality products.
2. To teach each participant to use and care of the grill.
3. To have each participant learn how to adjust a recipe.

BEHAVIORAL OBJECTIVES: After completing this lesson the participant should be able to:

1. Demonstrate the ability to prepare quality breakfast items on the grill.
2. Use appropriate procedures while using and cleaning the grill.
3. Evaluate a griddle cake, a piece of French toast and cornmeal mush.
4. Discuss the effects on quality caused by over-mixing griddle cake batter, and over and under heating the grill during the cooking of breakfast breads.

ASSIGNMENTS:

LESSON SIX: CEREAL COOKERY-- BREAKFAST MENU PLANNING AND "GETTING IT ALL TOGETHER"

GOALS: The purpose of this lesson is to:

1. Have the participant gain knowledge and develop skills that are necessary to prepare high quality cooked cereals.
2. Be able to plan a "traditional" and a "non-traditional" breakfast that includes foods from each of the basic food groups.
3. Arrange in order the proper production sequence for a given breakfast menu.

BEHAVIORAL OBJECTIVES: After completion of this lesson the participant should be able to:

1. Prepare products of high starch content to yield a high quality cooked cereal.
2. Demonstrate a method of cookery which retains nutrients added to enriched rice.
3. Show volume increase in these starch containing foods as a result of cooking.
4. Demonstrate methods of cereal cookery.
LESSON SIX: CONTINUED-

5. Discuss the characteristics of high quality cooked cereals.
6. Discuss unique features of the breakfast meal.
7. Name foods from each of the basic food groups and plan them into a traditional breakfast and a "non-traditional breakfast" meal.
8. Arrange in order the proper production sequence for a breakfast meal.
9. Explain five principles of cereal cookery.
GLOSSARY

BREADS AND BREAKFASTS

Absorb—Absorption—To absorb is to take in and hold; absorption refers to the ability of flour and other dry ingredients to take in and hold liquids.

Bake—Cook by dry heat in an oven or closed chamber that has been preheated.

Batter—Mixture of flour, sugar, eggs, liquid, etc., which can be poured.

Beat or Whip—Mix air into a batter with a mixing machine at high speed or with a hand whip used rapidly.

Blend—Two or more ingredients gently folded or mixed together until smooth.

Bolting—Sifting of ground grain to remove the bran.

Bran—Skin or outer covering of wheat berry and removed during milling.

Carmelizing—Heating food containing a large percentage of sugar until a brown color and characteristic flavor develops.

Cake Leavened—Leavened by the use of baking powder. Most popular method because of reduced preparation time. Doughnut mixes are usually of this type.

Coagulate—To clot or curdle.

Cut In—To distribute fat into dry ingredients in small particles by using a chopping motion with a pastry blender or two knives.

Develop Dough—Make a dough—generally one leavened with yeast—smooth by additional mixing after the ingredients are blended.

Dissolve—Mix dry ingredients into a liquid by stirring until no solid matter is present.

Dough—Thick, soft uncooked mass of softened flour.

Dough Hook—Attachment used on commercial food mixer to blend shortening into dry ingredients.

Dry Yeast—A dehydrated form of yeast.

Dust—To lightly cover a food or surface with a dry substance, e.g., flour on a pan, powdered sugar on doughnut.

Eggs—Provide flavor and color, act as thickeners, emulsifiers, binders or leaveners depending upon the food product.

Egg Wash—Mixture of egg and water brushed on the top of unbaked products to aid in browning.

Fermentation—Chemical reaction of the ingredients used in the making of dough which causes formation of carbon-dioxide and the expansion of the dough.
Flaky-- Made up of many very thin layers; such layers of dough are made by mixing fat and flour together to form small lumps. This is done in the preparation of pie crust dough, biscuits and puff pastry.

Flour - Gives body or structure to the product. Flour in yeast-raised doughs forms gluten which is elastic and permits dough to stretch or expand with leavening. Types of flour are: bread, pastry, cake, whole wheat, rye and self-rising.

Fold-- To gently mix one substance into another by an overhand motion with a mixing spoon, spatula or beater. Generally, flour or beaten egg whites are folded into a batter.

Fry-- Cook in hot fat. (Sauteing or panfrying—also deep fat frying)

Glaze-- Semi-transparent or glossy coating.

Gluten-- Tough rubbery substance formed when flour is mixed with water which serves as the structure of bread, rolls, and other products made from yeast-raised doughs.

Gradually-- Act of proceeding by stages.

Graham flour-- Unbolted wheat meal (Meal is coarsely ground grain)

Grain-- Cell structure or texture of a baked product.

Hydration-- Rehydration- Restoring water lost in drying.

Knead-- Folding or stretching dough, making it smoother by dough hook.

Leavening Agent-- Substance which causes a product to rise during baking; e.g., baking powder, baking soda, yeast, air, steam.

Measure-- To determine a specific amount of an ingredient.

Mix-- To blend two or more ingredients into one uniform mass.

Pastry Blender-- Device used to cut shortening into flour before adding liquid ingredients.

Proofing-- Process of increasing the bulk of yeast dough by placing it in a warm place, 80°F to 85°F.

Punch Down-- Forcing the gas out of the dough by folding one part of the dough over the other.

Rise-- Increase in volume creating a light, spongy texture.

Roll-- To flatten a dough with a rolling pin.

Salt-- Provides flavor, is a preservative, and enters into chemical reactions. In yeast leavened dough, salt sets the rate of fermentation by its action on yeast.
Scaling-- Weighing ingredients with a scale. Portioning batter or dough according to unit weight.

Shortening-- Imparts richness, flakiness, tenderness, flavor, texture, color and volume to a product and helps keep it fresh. Shortenings include compound-types which may be either animal or vegetable in nature, and all-hydrogenated vegetable oils.

Sift-- To pass a dry ingredient or a mixture of dry ingredients through a sieve or sifter.

Soft Dough-- Dough which lends itself to spoon-dropped or bagged-out products.

Stir-- To mix with a circular motion in combining ingredients.

Sugar and Other Sweeteners-- Improves taste, flavor, color, tenderness and helps to keep the product fresh.

Texture-- Inside grain or degree of smoothness in a product.

Volume-- Size of a product.

Wash-- To brush the outside of a product with a liquid such as egg, milk or egg wash before and/or after baking.

Whole Wheat-- Flour made from entire wheat berry.

LESSON ONE: INGREDIENTS

I. Instructor preparation for class activities:

1. Prepare samples of bread, all purpose and cake flour and rye, graham and soybean flour and extra fine sugar.

2. Assemble the following:
   - Measuring cups for dry ingredients
   - Measuring spoons
   - Measuring cups for liquids
   - Straight-edge spatula, a sifter
   - Portion scale and kitchen scale
   - A small mixing bowl and spoon for each participant
   - 2 pop bottles with leavening agent measured into bottles

3. Duplicate sufficient copies of handouts:
   - #1 Purpose and objectives of each lesson
   - #2 Glossary Breads and Breakfasts

5. Market order:
   - All purpose flour
   - Dry yeast
   - Bread flour
   - Granulated sugar
   - Graham flour
   - Brown sugar
   - Rye flour
   - Baking powder
   - Soy flour
   - Vinegar

II. The following references provide more information on the subject of this lesson:


## Lesson 1

### Module I: Breads and Breakfasts

### Lesson Content

#### I. General Orientation

<table>
<thead>
<tr>
<th>A. Instructor introduces self and participants introduce each other.</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Complete enrollment procedures</td>
</tr>
<tr>
<td>- Give handouts</td>
</tr>
<tr>
<td>- Students are to bring a notebook and pencil for note taking</td>
</tr>
<tr>
<td>C. Sanitation and Dress Code</td>
</tr>
<tr>
<td>1. Personal</td>
</tr>
<tr>
<td>- Hair nets—All hair covered</td>
</tr>
<tr>
<td>- Apron or lab coat or uniform</td>
</tr>
<tr>
<td>- Enclosed, comfortable shoes with stockings, footlets or anklets</td>
</tr>
<tr>
<td>- Shoes—non-skid soles</td>
</tr>
<tr>
<td>- No colored nail polish, nails short and clean</td>
</tr>
<tr>
<td>- No heavy excessive jewelry</td>
</tr>
<tr>
<td>- No gum chewing while handling food. Beverages and smoking at break only.</td>
</tr>
<tr>
<td>- Handwashing—before and after each task, and after touching face, hair or handkerchief</td>
</tr>
<tr>
<td>D. Introduce participants to physical plan of kitchen and work area</td>
</tr>
<tr>
<td>1. Range—oven area</td>
</tr>
<tr>
<td>2. Mixing area</td>
</tr>
<tr>
<td>3. Work table area</td>
</tr>
<tr>
<td>4. Dishwashing—Pot and pan area</td>
</tr>
<tr>
<td>5. Handwashing facilities</td>
</tr>
</tbody>
</table>

### Class Activity and Evaluation

Participants form groups of two to find something they share in common. At the end of five minutes each person will introduce his partner to the rest of the class.

Ask a participant to demonstrate handwashing technique. Ask participants to specify times that hands must be washed.

Participants tour kitchen and work area. Class discussion regarding sanitation, physical plan of kitchen and work area and rules and regulations for equipment usage.
Lesson 1
Module I: Breads and Breakfasts

<table>
<thead>
<tr>
<th>LESSON CONTENT</th>
<th>CLASS ACTIVITY AND EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E.</strong> Rules and regulations for equipment usage</td>
<td>Participant will clean work surface using sanitary procedures. Participant will light oven and top burner.</td>
</tr>
<tr>
<td>1. Check with instructor initially before using electrical or gas equipment.</td>
<td></td>
</tr>
<tr>
<td>2. Equipment and work area must be left in clean, sanitary condition.</td>
<td></td>
</tr>
<tr>
<td>3. Each participant is responsible for cleanliness and sanitation of his own work area and equipment used.</td>
<td></td>
</tr>
<tr>
<td>4. Ingredients, equipment must be stored in proper place.</td>
<td></td>
</tr>
<tr>
<td><strong>II.</strong> Overview of the six lessons in this module</td>
<td>Handout #1: Purpose and objectives of each lesson with assignments</td>
</tr>
<tr>
<td>A. Discuss handout #1 Purpose and Objectives of each lesson.</td>
<td></td>
</tr>
<tr>
<td>B. Answer questions regarding handout</td>
<td></td>
</tr>
<tr>
<td><strong>III.</strong> Bakery Ingredients</td>
<td>Participants will feel textures of both soft and hard wheat flours. (+ rye, graham, soybean, and rice).</td>
</tr>
<tr>
<td>A. Flour</td>
<td></td>
</tr>
<tr>
<td>1. flour- high percentage of starch, 7-16% Protein (gluten) In bread gluten forms framework that holds all other ingredients. Gluten coagulates in baking to form the structure of bread. Hard wheat flour= strong gluten increases bread making Soft wheat flour= Smaller amount and softer gluten increases cake making Starch is the ingredient in largest amount in flour. It gelatizes when liquid, then heat is added and forms part of the product structure.</td>
<td></td>
</tr>
</tbody>
</table>
### Gluten
- H₂O needed to make gluten sticky
- Manipulation brings gluten particles together to form a network. (Reason for mixing and kneading some products and avoiding it in others).

### Liquid
**Development of gluten:**
- Gelatinization of starch.
- Reaction of the leavening agent.
- Dissolving of sugar and salt.
- Milk is liquid most often used-- adds nutrients, flavor and cause browning.
- Non-fat dry milk solids can be added to dry ingredients, then water used as the liquid.
- Fruit juice or other liquids sometimes is used.
- Recipe must be adjusted-- fruit juice and sour milk are acid, so soda must be used for part of the baking powder.

### Leavening Agent
- Steam, air, CO₂-- act by expansion of gas.
- Steam partially leavens all products (is the only leavening in popovers and cream puffs).
- Air-- incorporated by folding or rolling dough; beating batters and dough; creaming fat and sugar; beating eggs.
- CO₂ results from: combining sugar with yeast increasing fermentation and CO₂, combining acid and soda increasing CO₂ + H₂O
- Baking products (contains dry acid, soda and starch) + moisture increasing CO₂.
- Sifting soda with dry ingredients and combining with liquid.
  - Must be measured exactly
    - Insufficient= poor volume and color, a heavy, close grain and coarse crust
    - Excess= rough, loose, uneven grain crumbly, hard, dry texture.
    - Product may fall

---

**Participants will name products in which want strong gluten network and products in which one doesn't want gluten developed.**

Each student will make a gluten ball.

Half of the students will use soft flour (cake flour) and half will use hard flour (bread flour).

- Make stiff dough
- Knead for 10 minutes
- Allow to rest 20 min. (called conditioning)
- Carefully wash to remove starch
- Form gluten into ball and bake at 425° for 15 mins. Lower temp. to 300° until balls are rigid and dark brown.
- Let cool, cut and look at gluten network

Participants are asked to name ingredients that act as leavening agents.

Participants name products leavened with air, steam, chemicals and yeast.

Demonstrate effect of: cold water and soda
- Hot water and soda
- Vinegar and water + soda
  (A toy balloon over the top of a bottle may be helpful to demonstrate CO₂ formation)
Lesson Content:

- Leavening speed must be controlled.
- From chemicals most leavening action is during baking and very little during mixing or benching.
- Baking time must permit full batter movement.

4. **Sugar**
   Sweetens
   Affects texture and browning (tenderizes gluten)
   Needed in yeast mixtures (food for yeast, accelerates action)
   Excessive sugar will cause product to fall because it over tenderizes cells.

5. **Salt**
   Gives flavor and retards action of yeast.

6. **Fat**
   Promotes tenderness by coating the gluten strands as they develop, causing them not to stick together thus promoting tenderness.
   Not an essential ingredient in bread— but small amounts add flavor, promotes tenderness and retards staling.
   Is not used in large amounts; it interferes with formation of gluten.

7. **Egg**
   Used in many flour mixtures, adds nutrients, flavor, and color.
   Help retain steam (essential) ingredients for products such as cream puffs, and popovers, those would be solid mass with eggs.

Class Activity and Evaluation:

- Class will discuss texture of salt free bread products.
- Class will identify that adding fat to flour mixture also adds calories (ex: one slice yeast bread compared to one biscuit.)
- Class will identify what nutrient eggs add to flour mixture (protein, fat, calories, Vitamin A and Iron).
IV. Weighing and Measuring Ingredients

I. Measuring and Weighing Techniques

A. Standard measurements and uniform measuring practices are necessary for consistent and successful results in cooking. There are special measuring techniques and special measuring equipment for dry and liquid ingredients.

B. Dry ingredients should be weighed when possible. Weighing has the advantage of increased accuracy over measuring. Usually all dry ingredients used in a bread and breakfast recipes weighed.

C. If dry ingredients are to be measured, there are specific techniques to follow. Dry ingredients have a tendency to pack together. Good measuring results are obtained by stirring the contents of packages to eliminate packing before measuring begins.

Examples of foods which should be stirred to eliminate packing are cornstarch and powdered sugar. Brown sugar, if measured, should be packed until it holds the shape of the container.

D. Generally, liquid ingredients should be measured.

E. Oils, melted shortening and syrup should be measured.

F. Firm fat is weighed.

G. A secondary means of securing the proper amount of fat is to measure it.

1. Press the fat firmly into the measure until all air holes have been pressed out.

Demonstrate with flour how this food product packs together.

1. Weigh a cup of unsifted flour
2. Sift the flour into a cup measure, level with a straight-edge spatula and weigh again.
3. The sifted flour should have less weight per volume.

Demonstrate how to measure brown sugar. Pack into measure firmly enough for the sugar to keep the shape of the container when turned out. If lumpy, roll before measuring, or briefly heat in oven.
Lesson 1

Module I: Breads and Breakfasts

### LESSON CONTENT

#### V. Measuring and Weighing Equipment

A. Proper equipment is essential in following standardized recipes.

B. There are a number of standard equipment items used in quantity food production.

1. Scoops - # of dips = # of dippers 1 qt.
   - #12-5T (1/3 cup), #10-6T., #8-8T (1/2) cup

2. Measuring spoons

3. Ladles

4. Gallon measure

5. Graduated measuring cup

6. Scales
   - a.) Portion scale (one-ounce graduations)
   - b.) Kitchen scale (one-pound graduations)
   - c.) Platform scale (one-pound graduations)

7. Measuring cup set

### CLASS ACTIVITY AND EVALUATION

Discuss Handouts:

- "Quantity Food Production Equipment"
- "Measuring Equipment"
- "Functions of Scales and Balances"
LESSON TWO: Quick Breads

I. Instructor Preparation for class activities:

1. Duplicate sufficient copies of handouts:

   #1 Common Difficulties with Biscuits and Reasons Why
   2 Betty Crocker Score Card for Standard Biscuits
   3 Common Difficulties with Muffins and Reasons Why
   4 Score Card for Muffins (Betty Crocker)
   5 Nut Bread or Fruit and Nut Bread—Reasons Why
   6 Fruit or Nut Bread Study Sheet
   7 Scorecard for Quick Breads (Fruit-Nut Bread)
   8 The Mixer

2. Recipes for this lesson are from Food for Fifty:

3. Market Order:

   All purpose flour
   Baking powder
   Salt
   Sugar, granulate, white
   Shortening
   Eggs, fresh
   Dried-Skim Milk Powder
   Jelly (red) or orange marmalade
   Baking Soda
   Pecans
   Margarine
   Brown Sugar
   Raisins
   Cinnamon

The following references provide more information on the subject of this lesson:


Lesson 2
FOOD SERVICE EMPLOYEE SHORT COURSE
Module I: Breads and Breakfasts

LESSON CONTENT

I. Introduction

A. Breads and grain products are an important part of our diet.

B. These products contribute valuable nutrients:

1. Carbohydrate- provides energy and spares protein
2. Protein- growth- body organs, muscle, blood, skin, skeleton
   maintenance and repair of body tissue- as body cells
   wear out or are lost or are used.
   example blood- red blood cell (erythrocytes) live only
   120 days, must be replaced
   Regulation of body processes
   Hemoglobin- iron-bearing protein in blood- carries O₂
   to cells and CO₂ away from cells
   Antibodies- protein in nature and maintains body's re-
   sistance to disease
   Hormones- govern the metabolic reactions in our body
   Example: insulin- key to allowing glucose
   into the cells
   Gliaden in bread- Partially complete protein in the adult
   will maintain life, but has insufficient quantity of
   some essential amino acids. Will not promote growth.

Complimentary proteins-
Grains- By combining the following, a complete protein is
formed.
   - Rice and legumes
   - Corn and legumes
   - Wheat and legumes
   - Rice and milk
   - Wheat and milk or cheese
   - Wheat and peanuts
   - Wheat, sesame seeds and soybeans
   - Wheat and meat or fish or poultry

CLASS ACTIVITY AND EVALUATION

Class discussion:
   . Name the nutrients found in bread.
   . Discuss functions of each of these nutrients.
### LESSON CONTENT

#### 3. Vitamins

Standards of identity for enriched flour, bread, rolls and buns.

<table>
<thead>
<tr>
<th></th>
<th>Thiamin</th>
<th>Riboflavin</th>
<th>Niacin</th>
<th>Iron</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mg/1#</td>
<td>Mg/1#</td>
<td>Mg/1#</td>
<td>Mg/1#</td>
</tr>
<tr>
<td>Enriched Flour:</td>
<td>2.9</td>
<td>1.8</td>
<td>24</td>
<td>40</td>
</tr>
<tr>
<td>Enriched flour, self r.</td>
<td>2.9</td>
<td>1.8</td>
<td>24</td>
<td>40</td>
</tr>
<tr>
<td>Enriched rolls, bread or Buns</td>
<td>1.8</td>
<td>1.1</td>
<td>15</td>
<td>25</td>
</tr>
</tbody>
</table>

Vitamins lost in refinement are added back. Trace minerals (zinc and manganese) are lost. Thiamin (B₁) for metabolism of carbohydrate, Riboflavin (B₂) - a part of enzymes and co-enzymes essential for the release of energy within the cell. Niacin - essential for release of energy from carb., pro., and fat.

#### 4. Minerals-

Iron - enriched with iron so that 1 slice of bread provides approximately same amount of Iron as 1 oz. of beef, 1 frankfurter, 1/3 oz. chicken.
Calcium - Because bread is made with milk and many times contains added Dry Skim Milk powder it becomes an important source of calcium in diet. 7 slices = Ca in 3/4 c. milk or 1 oz. hard cheese.
**FOOD SERVICE EMPLOYEE SHORT COURSE**

**Module I: Breads and Breakfasts**

<table>
<thead>
<tr>
<th>LESSON CONTENT</th>
<th>CLASS ACTIVITY AND EVALUATION</th>
</tr>
</thead>
</table>
| **C. If breads are to be eaten and enjoyed, they must be made properly.**
  The goals of bread making are: to produce bread that is nutritious, attractive, palatable, reasonable in cost and standardized in quality. | Participants will identify goals of bread making. |
| **II. Procedures-** | 1 and 2- Participants will discuss why recipes should be tested and standardized. Participants will tell why ingredients should not be substituted and why one should not alter amounts of ingredients. |
| **A. Proper procedures will allow one to achieve the above mentioned goals.** | Participants will identify standard tools for measuring. Participants will tell what could be expected to happen to a loaf of quick bread if baked in too large a pan and too small a pan. Participant will show what is meant by staggering pans on oven shelves. Class will tell why ingredients and equipment should be assembled before mixing starts. Will tell why should prepare baking pans prior to mixing ingredients; will tell why oven should be preheated. |
| 1. **Use tested, standardized recipes.** | |
| 2. **Do not substitute one ingredient for another**
  **Do not alter amounts of ingredients** | |
| 3. **Use correct, standard tools as measures and use level measurements.**
  Only way that one can achieve a standard product each time. | |
| 4. **Use correct pan size**
  Too large pan- dry, heavy, loaf bread
  Too small pan- bread may fall during baking | |
| 5. **Pans in oven should not touch each other and should be staggered on oven shelves to allow air to circulate so that products will bake evenly.** | |
| 6. **Get ready**
  Assemble all equipment and ingredients
  Why?--Save tips and know if all ingredients are on hand.
  Prepare baking pans before mixing the product
  Why?--Shorter period between mixing and baking= better product.
  Turn on oven, set at desired temperature.
  Oven will be hot by time product is ready to bake. Ingredients should be at room temperature, as to get maximum volume from shortening and eggs. | |
7. Use only good quality ingredients, because a good quality product can't be made from poor ingredients.

8. If batter is to be baked in pans (i.e. loaves of quick bread) weigh the mixture as it is put into pans so as to assure uniform size and baking.

9. Remove product from oven when done.

10. Allow loaves of bread to cool 10 minutes before removing bread from pan.

III. Review of Lesson One

A. Ingredients—basic to breads

IV. Preparation of Biscuits, Muffins and Date-Nut Loaf Bread

A. Proportion of flour to liquid determines classification of batters and doughs.
   1. Pour batter = 1 p. flour to 1 p. liquid
   2. Drop batter = 2 p. flour to 1 p. liquid
   3. Soft batter = 3 p. flour to 1 p. liquid
   4. Stiff batter = 4-8 p. flour to 1 p. liquid

B. Three Methods of Mixing Batters and Doughs
   1. Biscuits—mixed by biscuit method (sometimes called pastry method)
      Steps—
      a. Measure dry ingredients exactly and place in mixer bowl.
      b. Blend at low speed for 3 minutes.
      c. Measure fat exactly, add to blended dry ingredients—cut into dry ingredients so that it will give pools of fat when product is baked.
      d. Measure liquid and add last so as not to over-develop gluten.
      Mix until all dry ingredients are soft, not stiff or dry.
      e. Biscuit dough will be soft, not stiff or dry.
      f. Place dough on lightly floured board. Knead lightly, over kneading will produce a tough, compact biscuit.

Class will name products made from:
- Pour batters—popovers, pancakes, waffles
- Drop batters—muffins, cornbread, cakes, nut breads
- Soft dough—biscuits, cookies
- Stiff dough—i.e. crust, pastry, yeast breads

Participants will explain why liquid is added to biscuits ingredients last.

Participants will describe why and how over-kneading causes a tough, compact product.
### Lesson Content

2. **Muffins**—mixed by muffin method.  
   Follow recipe exactly, read over recipe completely before starting muffins.  
   Discuss Handout #8: "The Mixer"  
   Recipe for Muffins  
   Steps for "Muffin Method" of mixing:  
   a. Measure each dry ingredient and put in mixer bowl.  
   b. Blend dry ingredients, using flat beater, low speed for 3 mins.  
   c. Measure each liquid, combine milk, beaten eggs and melted fat.  
   d. Add to dry ingredients. Mix only about 15 seconds. Batter will be lumpy.  
   e. Dip 3/4-of muffin with #24 dipper into well greased muffin tins. Using a dipper insures uniform size and is faster than using a spoon. Stir remaining batter until very smooth—finish dipping.  
   f. Bake in 400°F preheated oven.

3. **Fruit-Nut Bread**—mixed by the "cake method" (alternate method for mixing muffins)  
   Steps:  
   a. Measure fat and sugar  
   b. Cream fat and sugar together—incorporates air and is spread out in a thin film to coat the whole gluten strand.  
   c. Add beaten eggs to incorporate air  
   d. Add measured, sifted dry ingredients, alternating with measured liquid so ingredients are blended.

### Class Activity and Evaluation

Give group II recipe and Muffin preparation packet.  

Pass out duty assignments, clarify information as indicated by questions asked.  

Give each participant Handout #8, "The Mixer"—Discuss  

Give each participant a scorecard for muffins.  

Participants will describe the cake method of mixing batters and doughs.

Participants will explain why fat and sugar is creamed together and why eggs are beaten before added to creamed mixture.

Groups will prepare product for which they have recipes.

Participants will discuss how the products they made compared to the standard product.
<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>DIFFICULTY</th>
<th>REASON WHY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biscuits</td>
<td>Tough</td>
<td>Lack of fat</td>
</tr>
<tr>
<td></td>
<td>Pale crust</td>
<td>Too much mixing</td>
</tr>
<tr>
<td></td>
<td>Uneven shape</td>
<td>Too slow an oven</td>
</tr>
<tr>
<td></td>
<td>Uneven brown</td>
<td>Too stiff a dough</td>
</tr>
<tr>
<td></td>
<td>Flat and heavy</td>
<td>Flour on surface</td>
</tr>
<tr>
<td></td>
<td>Coarse, porous grain</td>
<td>Carlessness in handling</td>
</tr>
<tr>
<td></td>
<td>Harsh, dry, crumb</td>
<td>Uneven heat</td>
</tr>
<tr>
<td></td>
<td>Hard crust</td>
<td>Uneven shape</td>
</tr>
<tr>
<td></td>
<td>Crumbly and oily</td>
<td>Uneven brown</td>
</tr>
<tr>
<td></td>
<td>Yellow specks</td>
<td>Uneven shape</td>
</tr>
</tbody>
</table>

**Undermanipulated**

**Optimum**

**Overmanipulated**
## APPEARANCE SCORE
Golden brown tops, sides lighter, symmetrical shape, uniform size; fairly smooth level top; 2 to 3 times size of unbaked biscuit; free from excess flour. Inside creamy white; flaky, free from yellow or brown spots.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERFECT</td>
<td>4</td>
<td>FAIR</td>
</tr>
<tr>
<td>GOOD</td>
<td>3</td>
<td>POOR</td>
</tr>
</tbody>
</table>

**Poor Characteristics:**
- Low volume: Not enough leavening; too much shortening; too much mixing or handling; oven temperature too high.
- Too pale: Oven temperature too low.
- Bottom crust too dark: Baked on darkened pan.
- Yellow or brown spots: Too much leavening; ingredients not well mixed.
- Excess flour on crust: Too much flour sprinkled on pastry cloth.

**Here's Why:**
- Not enough leavening; too much shortening; too much mixing or handling; oven temperature too high.
- Oven temperature too low.
- Baked on darkened pan.
- Too much leavening; ingredients not well mixed.
- Too much flour sprinkled on pastry cloth.

## TEXTURE SCORE
Light and flaky, pulling off in thin sheets; medium fine grain; slightly moist.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERFECT</td>
<td>4</td>
<td>FAIR</td>
</tr>
<tr>
<td>GOOD</td>
<td>3</td>
<td>POOR</td>
</tr>
</tbody>
</table>

**Poor Characteristics:**
- Not enough leavening; too much or too little mixing of shortening with flour mixture: not enough kneading.
- Too much leavening; too little mixing.
- Dough too stiff, overbaking.
- Underbaking.
- Not enough leavening; too much mixing; underbaking; too much flour; too much liquid used.

**Here's Why:**
- Not enough leavening; too much shortening; too much mixing or handling.
- Too much leavening; too much flour; too much mixing.
- Burned.
- Overbaked, oven temp. too high.
- Poor quality shortening.

## TENDERNESS SCORE
Crisp and tender crust; moist and tender inside.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERFECT</td>
<td>4</td>
<td>FAIR</td>
</tr>
<tr>
<td>GOOD</td>
<td>3</td>
<td>POOR</td>
</tr>
</tbody>
</table>

**Poor Characteristics:**
- Tough: Lack of fat; too much liquid; too much flour; too much mixing.
- Crumbly: Too much leavening; too much shortening.

**Here's Why:**
- Lack of fat; too much liquid; too much flour; too much mixing.
- Too much leavening; too much shortening.

## FLAVOR SCORE
Pleasing, well blended with no taste of butterness

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERFECT</td>
<td>4</td>
<td>FAIR</td>
</tr>
<tr>
<td>GOOD</td>
<td>3</td>
<td>POOR</td>
</tr>
</tbody>
</table>

**Poor Characteristics:**
- Tough: Lack of fat; too much liquid; too much flour; too much mixing.
- Burned: Overbaked, oven temp. too high.
- Rancid: Poor quality shortening.

**Note:** With Bisquick, all ingredients except milk are always in the correct amount.

### NOW ADD UP YOUR SCORE

<table>
<thead>
<tr>
<th>Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td></td>
</tr>
<tr>
<td>Tenderness</td>
<td></td>
</tr>
<tr>
<td>Texture</td>
<td></td>
</tr>
<tr>
<td>Flavor</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL**

If perfect, your total would be 16. How near perfect did your biscuit score?
## COMMON DIFFICULTIES WITH MUFFINS AND REASONS WHY

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>DIFFICULTY</th>
<th>REASON WHY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muffins</td>
<td>Unevenly browned</td>
<td>Too hot an oven</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Oven does not heat uniformly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pans filled too full</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wrong proportions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Too much beating</td>
</tr>
<tr>
<td>Peaks</td>
<td></td>
<td>Pans filled too full</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heat uneven</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Too much stirring</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Insufficient leavening</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Too stiff a mixture</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Too hot an oven</td>
</tr>
<tr>
<td>Tough</td>
<td></td>
<td>Wrong proportions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Too much mixing</td>
</tr>
<tr>
<td>Heavy and irregular</td>
<td></td>
<td>Insufficient leavening</td>
</tr>
<tr>
<td></td>
<td>in grain. Tunnels.</td>
<td>Too much mixing</td>
</tr>
<tr>
<td>Smooth crust</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hard crust</td>
<td></td>
<td>Too long baking</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Too high a temperature</td>
</tr>
<tr>
<td>Harsh, dry, crumb</td>
<td></td>
<td>Too stiff a batter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overbaked</td>
</tr>
</tbody>
</table>
This score card includes a definite standard which helps the beginner to know what to look for when judging.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Possible Score</th>
<th>Your Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Shape</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slightly rounded top</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Symmetrical</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Pebbled top</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>B. Color</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Even</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Golden brown</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>C. Texture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Crust</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tender</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Thin</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>2. Crumb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moist</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Tender</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>No tunnels</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Medium fine grain</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>D. Flavor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pleasing</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Well blended</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL SCORE 65

Kindly judge without discussion, using the following numerical rating.

1. for very poor
2. for poor
3. for fair
4. for good
5. for standard

Comments by judge:
Muffin and biscuit methods of mixing are most commonly used, but for a very rich cake-like bread, a cake mixing method will be given.

The character of these breads will differ depending upon ingredients used, the amount of those ingredients which add richness and tenderness to the product. (Some batters are thin, others thick when poured into loaf pan.) Therefore, some are dry and "bready", others are more cake-like in quality when baked.

Keeping quality on shelf, refrigerator or freezer will vary depending on richness and moistness of freshly baked fruit and nut breads.

**Baking Hints to Prevent Cracked Crust**

- Preheat oven to 350°F if nut bread is baked as soon as mixed.
- Preheat oven to 375-400°F, if nut bread is allowed to stand 20-30 minutes, covered, before baking.
- Tent the loaf pan of batter with heavy foil until bread rises and begins to brown also helps.

**REASON OR WHY**

1. The large mass of batter in the loaf pan heats through slowly. Therefore it is desirable to allow time for the leavening agent to react, and increase in volume take place before the crust sets. When this procedure is followed a baked product with a smoothly rounded crust results. When baking is too rapid, a cracked, top crust and a more solid crumb will result.

2. Long, narrow pans will bake a loaf with a line or small crack on top. Consistency of batter will make the differences in depth of crack. Batter that touches the baking pan bakes first. As batter warms to baking temperature, it thins, and allows a film of fat and sugar to run toward the center of top crust; thus a shiny line or a sticky crack forms down center of loaf.

3. Tent a piece of heavy foil over the top of the loaf pan filled with batter. Allow foil to remain until batter rises and begins to brown, then remove it carefully so that you do not touch the soft crust. This keeps top moist and prevents heavy crack from forming. The crack is caused because there is unbaked batter under a crust and it "erupts" when the leavening agent reacts.
STANDARDS OF QUALITY

Fruit or nut breads are quick and easy to make. The kind of ingredients, the method of mixing, and the baking technique are practically the same as for muffins. Some quick bread recipes, however, are made by the cake method. Interesting variations are possible simply by adding nuts, fruits, cereals, and other flours.

Quick breads are not always baked in bread loaf pans. For example, corn bread and Sally Lunn are baked in shallow pans; spoon breads in baking pans or layer cake pans; and Boston brown bread may be baked in loaves or steamed in covered cans or special molds.

Cracks in the crust are fairly typical of quick breads and do not necessarily indicate an unsatisfactory product.

ANALYZE RESULTS

GOOD QUICK BREADS HAVE:
- Well-proportioned shape
- Evenly rounded or flat top
- Uniform color
- Tender, slightly rough crust
- Even grain, no tunnels
- Moist, tender crust
- Good flavor

FAILING CAUSES OF FAILURE

INCORRECT PROPORTIONS OR INACCURATE MEASUREMENTS CAUSE BREAD THAT MAY BE:
- Undersized
- Tunneled
- Coarse-textured
- Crumbly
- Dry
- Compact, heavy

IMPROPER MIXING CAUSES BREAD THAT MAY BE:
- Undersized
- Tough, compact
- Tunneled
- Crumbly, coarse

WRONG-SIZED PANS CAUSE BREAD THAT MAY BE:
- Cracked, peaked
- Soggy, compact
- Too pale
- Too brown

INCORRECT TIME AND TEMPERATURE CAUSE BREAD THAT MAY BE:
- Too brown
- Too light
- Doughy
- Heavily crusted
- Cracked
- Hard, dry

POOR HANDLING AFTER BAKING CAUSES BREAD THAT MAY BE:
- Soggy on bottom
- Soured inside
SCORECARD FOR QUICK BREADS (FRUIT-NUT BREAD)

Evaluate against characteristics of a high quality product using a 5-point scale--5=most desirable, 1=least desirable.

<table>
<thead>
<tr>
<th>Product</th>
<th>Appearance</th>
<th>Texture</th>
<th>Tenderness</th>
<th>Flavor</th>
<th>General Acceptability</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

Characteristics of a High Quality Product:
The 12-20 quart bench model and the 5 quart table model are used for mixing, creaming, or beating ingredients for cakes, batters, doughs, pastries, or meringues.

**Uses for Beaters and Whips (Agitators)**

**Flat Beater**—Use for general mixing, never use for heavy doughs.

1. Mixing main dish items such as ham-bean loaf, fish cakes, and hamburgers.
2. Mashing vegetables such as potatoes and squash.
3. Creaming mixtures such as butter and sugar, uncooked icings, honey butter, and sandwich spreads.
4. Mixing batters such as muffins, cakes, and steamed puddings.
5. Blending mixtures such as pastry and biscuits.

**Wire Whip**—Use for incorporating air into light mixtures; never use for heavy mixtures.

1. Blending dry mixes.
2. Whipping dry milk.
3. Reconstituting dry milk.
4. Beating egg whites.
5. Whipping cream.
Dough Hook--Use for mixing heavy doughs requiring a folding and stretching action for best development.

Pastry Knife--Use for combining shortening and flour by a cutting action.

ROLL WARMER

The roll warmer is used for keeping a large quantity of breads and sweet rolls warm. The warmer has separate drawer compartments with individual controls for each drawer. The roll warmer keeps bread from drying out and is an efficient method for holding hot breads prepared in advance.

After the unit cools, remove crumbs from compartment drawers. Wash the drawers with a soft cloth and a mild detergent and water solution. Rinse and wipe dry with a soft cloth.
How To Operate A Mixer

1. Select appropriate size bowl and place on bowl support. Fill bowl with ingredients 1/2 to 2/3 capacity for best results.
2. Select proper agitator or attachment for desired use and insert onto beater shaft. Fit slot in agitator shaft over pin extending from hub and adjust until shaft is in the locked position.
3. Raise bowl to desired height by means of bowl raising lever. The agitator should not touch bowl.
4. Check to see if speed selector is on low speed and then start machine. Belt driven machine: Adjust speed control and switch to "On" position. Gear driven machine: Be sure gear is in neutral. Press start button and set gear to speed required by recipe. It is advisable to start at-speed 1, then adjust to higher speeds if necessary. IMPORTANT: For gear driven machine, always put clutch lever into neutral before changing speeds.
5. Select speed desired and mix required length of time.
7. Use bowl raising wheel or lever to lower bowl.
8. Remove beater by turning it around until pin on hub slips out of slot in beater shaft. Remove bowl.

How To Clean A Food Mixer*

CAUTION: Instructions given below are general. Read and follow the manufacturer's directions carefully.

Daily Cleaning:

1. Immediately after use, clean bowl support, beater shaft, shell, and base with hot detergent solution. Rinse and dry with clean paper towels. Scrape and brush out groove on beater shaft if necessary.
2. Wash bowl and beaters immediately after using (if egg mixtures or flour batters have been used, apply cold water before washing with hot water). Rinse and dry beaters thoroughly and hang up to prevent bending. Rinse and dry bowls thoroughly to prevent rusting.

Weekly Cleaning:
(to supplement daily cleaning.)

1. Clean entire mixer thoroughly following instructions for daily cleaning.

Safety Practices For Use Of The Mixer

1. Select the correct bowl for the type of mixture and then select the correct beater or whip according to the bowl size and mixture.
2. Be sure to fasten the bowl and beater or whip securely before starting the motor.
3. Prevent spillage by starting the machine at low speed.
4. Do not put hands or spoons into the bowl while the mixer is in operation.
5. Always use a rubber scraper, flexible spatula, or long-handled spoon to scrape down the sides of the bowl and to remove food from the beater or whip.
6. Scrape down the sides of the bowl after the agitator has stopped.
7. Use mixing bowls for mixing only--do not put them on the range or in the oven.
8. If the mixer is used on a continuous basis, always allow time for the motor to cool. Most mixers operate at a capacity load for one hour without overheating or damaging the motor.
9. Remove agitators and attachments only when the motor has stopped.
10. Use bowls large enough to hold the food to be mixed without danger of it slopping over onto the floor.
11. Use a splash cover if bowls are filled over half full.
12. Do not use a container too heavy for you to handle safely unless wheeled equipment is available for moving the bowl and materials.
13. Should an overload occur, stop the machine and correct the condition before continuing with the job.
14. Be sure small utensils are not dropped into the bowl.
15. Do not wear loose clothing that may catch in the moving parts of the machine.

The basic steps in making yeast bread are as follows:

1. Mixing--Ingredients are combined according to the order listed in the recipe.
2. Kneading--The ball of dough is worked with the hands to develop the gluten in the dough. The dough is kneaded for 5 to 8 minutes or until it becomes smooth and satiny in appearance.
3. Fermenting--The dough is placed in a warm, moist place to allow the yeast to produce carbon dioxide gas to leaven the product.
4. Punching--When dough has risen sufficiently, it is tested by inserting two fingers into the mixture. If holes close very slowly, dough is ready for punching. Using the fist, pound the center of mixture and fold the outer edges into the center. Punch for 2 to 4 minutes; then turn inside out. This process better distributes the yeast and aids in the development of gluten.
5. Scaling--Dough is weighed into equal portions.
6. Rounding--Weighed portions are made into balls.
7. Resting--Dough rests for approximately 10 minutes to relax the gluten and make it easier to handle.
8. Molding--Dough is formed into desired shape (rolls, loaves, cinnamon rolls, etc.).
9. Panning--Dough is placed in a greased pan (seam side down in the case of loaves).
10. Proofing--Pans are placed in a proof box which is warm and humid. Dough is allowed to double in size. When fully proofed, dough slowly fills out small dents made by the fingers and is ready to be baked.
LESSON THREE:

Module I: Breads and Breakfasts

I. Instructor Preparation for Class Activities:

1. Assemble the following ingredients:
   . dry yeast
   . Sugar
   . Salt
   . Nonfat dry milk
   . Fat (shortening)
   . Bread flour
   . Margarine
   . Eggs
   . Marachino cherries
   . Nuts (pecans or walnuts)
   . Cinnamon
   . Poppy seeds
   . Sesame seeds
   . Raisins

2. Make one recipe of Plain Rolls—Food For Fifty, page 138. Have dough ready to be shaped 30 minutes after class starts.

3. Duplicate sufficient copies of Handouts:
   #1 Bread Ingredients and Their Functions
   #2 Ordinary Bread Faults and Their Causes
   #3 Shaping Techniques
   #4 Shaping Rolls
   #5 Scores for Judging Rolls
   #6 ABC's of Bread Storage
I. Introduction
   A. Breads are an important part of the diet.
      1. Adds variety (taste, appearance)
      2. Economical source of energy
      3. Contribute valuable nutrients: Complex carbohydrate, protein
         various B vitamins, trace minerals (Fe, Zn, magnesium, iodine)
         - flour is enriched with Fe
         - Zn is refined flour contains only 1/5 of the zinc of whole
           grain
         - Magnesium is lost in refining- flour is very good source
           if it is whole grain.
         - Standards of identity for enriched flour, bread, rolls &
           buns:
           
           |            | Mg. | Ribo. | Niac. | Fe |
           |------------|-----|-------|-------|----|
           | Enriched flour---------- 2.9 1.8  24 40 |
           | Enriched self-rising flour---- 2.9 1.8  24 40 |
           | Enriched bread, rolls or buns-- 1.8 1.1  15 25 |
           Trace minerals zinc & magnesium are not replaced.

II. Breads
   A. Maybe leavened with yeast (yeast breads)
      1. Lean dough: A dough made with little or no sugar & shortening.
         a. Bread- white, wheat, French
         b. Rolls- white, brown and serve, hamburger
         c. Takes longer for yeast to produce leavening effect
      2. Sweet dough: A dough made from sugar, shortening & eggs.
         a. Bread- raisin, cinnamon
         b. Rolls- caramel, hot cross buns, etc.
         (Start activity of shaping rolls and preparation of quick rolls
          while continuing lecture)
### LESSON CONTENT

3. Principles of Yeast Bread preparations
   a. Dry yeast is blended with warm water and sugar; the yeast mixture is held at warm temperature. This procedure will:
      - Hydrate dry yeast cells.
      - Provide food (sugar) for growth of yeast cells thereby producing carbon dioxide for leavening.
      - Provide a warm temp. for rapid growth of yeast growth of yeast cells. (Cold temperature delays yeast growth; too high temp. kills yeast cells).
      - Avoids depressing effect of salt on rate of yeast growth.
   b. Kneading dough develops elastic gluten structure essential for proper fermentation.
      - Kneading of dough more evenly distributes yeast cells through the dough for more even leavening action.
      - Kneading dough after first fermentation period further increases dispersion of yeast and gas cells.
   c. Oven heat causes rapid increase in yeast activity with increase in bread volume during 1st part of baking period.
   d. Selected factors which will affect quality characteristics of bread dough are:
      - Temperature for yeast activity
      - Effect of salt on yeast activity
      - Effect of kneading
   e. Factors which contribute to browning of crust are:
      - Dextrinization of starch
      - Carmelization of sugars (Sucrose and Lactose)
   f. For best results in bread baking
      - Proper equipment is needed
      - Temperature controls on oven must be right.

### CLASS ACTIVITY AND EVALUATION

3. a. Why blend yeast in warm water & sugar?
   b. Why knead dough?
   c. Why does volume increase during 1st part of baking period?
   d. What are factors which will influence the quality characteristics of bread?
   e. Why does bread brown during baking?
   f. What are factors which will provide good results in bread baking?
### Lesson 3

**Module I: Breads and Breakfasts**

**Lesson Content**

- Standardized recipe's
- Good quality ingredients
- Weigh and measure accurately
- Know and use specific techniques recommended in recipe.

1. **Mixing** - Combine ingredients in order listed
2. **Kneading** - Mixing of dough to develop gluten
3. **Punching** - Folding of dough from the sides into the middle until most of gas is expelled. This relaxes gluten and remixes ingredients so that yeast obtains new food.
4. **Proofing** - The fermentation of the sugar in the dough. Yeast multiply--produces CO₂ which leaves dough.
   - Temperature of 80-85°F and humidity of 75% is desirable.
   - Proofing is complete when dough has doubled.
   - Usually requires 15 to 45 min.
5. **Scaling** - Dough is weighed into equal portions.
- Keep oven temperatures constant for the specified time.
- Preheat ovens to desired temperature.

**Production Stages or Steps in yeast Bread preparations**:

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Go over recipe and assemble all ingredient and small utensils (scales, liquid measuring containers, pans, etc)</td>
</tr>
<tr>
<td>b.</td>
<td>Weigh and measure ingredients</td>
</tr>
<tr>
<td>c.</td>
<td>Mixing of ingredients - The three most common methods:</td>
</tr>
<tr>
<td>1.</td>
<td>Straight dough method - Ingredients are combined, kneaded and allowed to rise, after rising is punched, portioned and allowed to rest. Dough is then shaped, panned, proofed &amp; baked.</td>
</tr>
</tbody>
</table>

### Class Activity and Evaluation

Define: Mixing, kneading, punching, proofing, scaling

Why preheat oven?

4. How can time and energy be saved in assembling ingredients and small utensils?

Name the 3 most common mixing methods.

Describe each of these methods.
## Lesson Content

### Sponge Method:
The yeast is combined with part of the liquid, sugar & flour. The mixture is covered and set in a warm place (80-85°F) until it is light and bubbly or spongy. Then fat, salt, remaining flour and remaining ingredients are added to the sponge to make a stiff dough. After this step, the procedure is the same as the straight dough method (above).

### Quick action method or dough method.
**Batter or No-Knead Method**—As the name implies, the kneading and shaping steps are omitted. Mixing is faster because bread is made from a batter rather than a dough. The texture of products made by this method is not as fine and uniform as bread from a kneaded dough. Products made by the no-knead method have a higher moisture content. This method is frequently used in the preparation of dinner rolls.

### Proofing

#### d. Optimum conditions
- Avoid chilling. No lower than 70 degrees or higher than 85%
- Draft Free
- Controlled humidity (75% ideal)

#### e. Finger tip test
To determine punch time, insert 2 fingers in dough to see if it falls or springs back into place. If it falls, the dough is ready.

#### f. To retard dough
Refrigerate below 38 degrees.

#### e. Punch down on dough

1. **Purpose:** Punch and turn dough when double in bulk to retain sweet, nutty flavor.
2. **Procedure:** Fold from sides into middle, punching out most of the air.

### Class Activity and Evaluation

#### d. Name and discuss ideal proofing conditions

#### e. Why should dough be punched down?
How do you punch down bread?
Lesson 3
Module I: Breads and Breakfasts

LESSON CONTENT

f. Scale, shape and pan
   1. Scale - Weigh into equal parts
   2. Shape - As desired according to type of bread or rolls to be baked.
g. Pan proof rolls or bread
   1. Rolls about 30 minutes (to double in volume)
   2. Loaf of Bread - 1½ hours (to double in volume)
   3. Effects of over cooking
h. Bake in preheated oven
   1. Usual temperatures - 400-425º
   2. Test for doneness
   3. Remove from oven and cool.

5. Trouble-Shooting Bread Failures
   - Excessive volume or poor volume
   - Too dark crust
   - Poor texture
   - Tough crust


7. Prepare and Bake Rolls
   a. Distribute recipes

8. Display baked products

9. Evaluate baked products

10. ABC's of Bread Storage

11. Summarize and Questions.

CLASS ACTIVITY AND EVALUATION

f. Define what is meant by each term: Scale, Shape, Pan

5. Distribute Handout #1--Bread Ingredients and Their Functions
   #2--Ordinary Bread Faults and Their Causes
   Discussion of Handouts

6. Discuss Handout #7--Scoring Rolls

9. After scoring each product each participant will enter the score for each product on the blockboard.

   One participant from each group will describe standards for that group's product.
   Another participant will average the scores for each of the products.
   Discuss products comparison to the standards.

10. Discuss Handout #6--ABC's of Bread Storage
### BREAD INGREDIENTS AND THEIR FUNCTIONS

#### MAIN FUNCTIONS IN FINISHED PRODUCT

<table>
<thead>
<tr>
<th>INGREDIENTS</th>
<th>BINDING AGENT</th>
<th>ABSORBING AGENT</th>
<th>AIDS KEEPING QUALITIES</th>
<th>AFFECTS TEXTURE AND STRUCTURE</th>
<th>AFFECTS NUTRITIONAL VALUE</th>
<th>AFFECTS FERMENTATION</th>
<th>IMPARTS CRUSTY COLOR</th>
<th>IMPARTS DIETHYL ETHER</th>
<th>IMPARTS VOLUME</th>
<th>IMPARTS VAPORS</th>
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<td>OVER 70°F SHORTENING</td>
<td>OVEN TEMP. TOO HIGH</td>
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</tbody>
</table>

From: Understanding Baking by Amendola and Landberg - CBI Publishing
Page 62
SHAPING TECHNIQUES

Sweet yeast doughs lend themselves to a number of interesting shapes and variations. After shaping, let rise until doubled in bulk. Bake on a lightly greased pan in a hot oven (425°F) for 12 to 20 minutes depending on the size.

Dinner rolls. Roll dough into cylindrical shape, approximately 4 inches long, tapering at ends.


Cloverleaf rolls. Form bits of dough into balls about 1 inch in diameter. Place 3 balls in each greased muffin cup. Brush with melted butter.

Lucky clovers. Shape in balls and place in muffin pans. With scissors divide the rolls in half, then in quarters, cutting almost through to the bottom of the rolls. Brush lightly with water or melted butter. If desired, brush with slightly beaten egg white diluted with 1 tablespoon of water and sprinkle with poppy or sesame seeds.

For all the twisted shapes, roll dough a little less than 1/2 inch thick. Cut into strips 3/4 inch wide and about 6 inches long.

Knots. Twist and tie each strip into a knot. Press ends down on greased baking sheet.

Braids. Braid three or four strips together.

Twists. Fold an 8 inch strip in half and twist in opposite directions.

Snails. With forefinger hold one end of the strip on the baking sheet. Twist and wind the strip around and around. Tuck the other end underneath.

Rosettas. Tie a loose knot in the center of an 8-inch strip. Bring one end up through the center and the other end over the side and tuck underneath.

Butterflies. Roll dough 1/8 inch thick into an oblong 6 inches wide. Spread with soft butter and roll up like a jelly roll. Cut into 2-inch pieces. Press across the center of each with a knife handle (to resemble a butterfly).

Crescents. Roll dough into circular shape about 1/4 inch thick. Cut into wedge-shaped pieces. Brush with melted butter and roll up, beginning at the wide end. Press point down firmly and curve into crescents when placed on pan.

Fan Tans. Roll dough to a very thin sheet. Brush with melted butter. Cut into strips 1 inch wide. Stack 6 strips evenly and cut into 1 1/2-inch pieces. Place cut side down in muffin pan.
Some techniques used to make rolls are shown here: (a) pan rolls; (b) twin rolls; (c) cloverleaf rolls; (d) fan tans or butter rolls; (e) Parker House rolls; (f) single or bow-knot rolls; (g) double or rosette rolls; (h) kaiser knot rolls; and (i) triple or braided rolls.

Question: Would any of the above be considered hard rolls having been made from lean dough?

Answer: The rolls displayed and named are all soft (rich) dough rolls except for (i) kaiser knot rolls, which are made from lean dough.

SCORES FOR JUDGING ROLLS

1. Appearance (25 points)
   a. Is the color of the rolls, top and bottom crusts, even golden brown? (10 points)
   b. Is the crust smooth with no cracks or bulges? (5 points)
   c. Are the rolls uniform in size? (5 points)
   d. Are the rolls uniform in shape? (5 points)

2. Crumb (30 points)
   a. Is the roll light and tender? (10 points)
   b. Are the holes of even size? (10 points)
   c. Is inside the roll free from dryness or doughiness? (10 points)

3. Crust (10 points)
   a. Is the crust crisp and tender? (10 points)

4. Flavor (35 points)
   a. Is the taste pleasant with a sweet nutty flavor? (15 points)
   b. Is the odor pleasant with no flat, sour or objectional odor? (15 points)
   c. Is there enough salt, sugar, or fat for good flavor? (5 points)

SCORE

An excellent roll would have a score of 90-100.
A good roll would have a score of 80-90.
A fair roll would have a score of 70-80.
A poor roll is anything that rates less than fair.
ABC'S of Bread Storage

For the life of it, bread deserves good treatment. Bread is a perishable food and how it is stored affects its good eating qualities. Wrapping and storage conditions are factors in maintaining freshness. Signs of staling are loss of flavor and aroma of fresh bread, an increase in firmness and crumbliness, and development of a harsh texture.

ALWAYS WRAP AT THE START

In the modern bakery, bread is scientifically wrapped in moisture-resistant material. This is the best procedure for maintaining freshness because it keeps the bread in an ideal, humid atmosphere. Wrapped bread or packaged rolls should be left in original wrappers when placed in storage units. Bread or rolls which may be purchased unwrapped, can be kept satisfactorily if wrapped in moisture-vapor proof papers or if placed in a moisture-resistant bag before storing. Exceptions are the hard- or crisp-crusted breads and rolls. These products are best when eaten fresh.

When serving bread or when making sandwiches, remove only as many slices as needed. Fold the excess wrapping material over the remaining bread to retain moisture and to exclude air-borne mold spores.

BE WISE ABOUT STORAGE AREAS

Refrigerator storage: Bread may be stored in the refrigerator to retard mold growth, especially during hot weather, but the longer the refrigeration period, the firmer bread becomes. Refrigeration temperatures step up staling. Use of wrappers or special containers does not offset the affects of cool temperature on bread freshness.

Freezer storage: Bread should be stored in frozen food cabinets at 0°F. or lower. These temperatures keep the flavor, freshness, original moisture and aroma of bread intact if it is wrapped securely in moisture-vapor proof material beforehand. Bread, thawed or fresh, stales at the same rate under like storage conditions. Fresh hard- or crisp-crusted breads or rolls should be wrapped loosely in kraft paper. To use, unwrap and thaw bread at room temperature. Heat, uncovered, in a hot oven for about five minutes and serve immediately. Freezing stale or partially stale bread will not restore its freshness.

Bread box storage: Properly wrapped bread may be stored satisfactorily at room temperature in a clean, dry, ventilated storage unit/container or drawer. Increased ventilation of the unit should be allowed for during hot weather. Such units should be placed away from all heat-producing equipment such as: Ranges, refrigeration units, radiators, water heaters, or clothes driers. Temperatures above 80°F. foster mold growth.

CLEAN FOR GOODNESS SAKE

Clean, dry containers are an unquestionable necessity for giving bread the care that it deserves. All storage containers should be thoroughly washed, weekly. Baking soda dissolved in warm water is the preferred agent for odorless cleaning. The unit should be dried well, including all joinings and it should be free of crumbs. Any remaining moisture or crumbs may favor mold growth.
Lesson 4

Module I: Breads and Breakfasts

I. Instructor Preparation for Class Activities

A. Duplicate sufficient copies of Handouts
   1. Breakfast Egg Cookery
   2. Scorecard for Cooked Egg Products

B. Market Order
   1. Bacon
   2. Ham
   3. Sausage
   4. Hamburger
   5. Kraft Sausage Seasoning

C. Assemble demonstration equipment
   1. Two frying pans
   2. Saucer (for breaking eggs)
   3. Slotted spoons
   4. Pancake turner
   5. Cooking oil
   6. Complete job sheet and post

II. References


Lesson 4
Module I: Breads and Breakfasts

LESSON CONTENT

I. Methods of Cooking egg
1. In the shell—either soft or hard
   a. on top of stove
   b. automatic egg cooker
   c. wire basket in steam jacketed kettle
   d. compartment steamer—5 lb. pressure.
   e. bring to room temperature prior to cooking prevents shells from cracking
   f. cooling immediately after hard cooking stops cooking process—prevents development of ferrous sulfide (greenish) ring around yolk.
2. Poaching
   a. Water to cover eggs.
   b. Broken into saucer and slid into water
   c. Water simmering when eggs are added
   d. Addition of vinegar and salt to prevent whites from spreading.
3. Frying
   a. Usually fried to order on grill—Low heat (325°F)
   b. High temperature toughens protein
   c. In quantity fried in oven
   d. "Country-fried"—Small amount H2O added and covered to set white
   e. "Blind-folded"—Hot fat flipped over egg while cooking.

CLASS ACTIVITY AND EVALUATION

I. Methods: Discuss "Egg Recipes", FOOD FOR FIFTY, page 207
1. Demonstrate cooking eggs in shell
   a. eggs directly from refrigerator and heat applied.
   b. eggs brought to room temperature prior to applying heat
   c. Hard cooked and allow to cool to room temperature.
   d. Hard Cooked—Cooled immediately by immersing in water.
   e. Compare quality use—Handout #2 Accepted Standards for Cooked Eggs

2. Three participants demonstrate:
   a. breaking egg directly into simmering water.
   b. breaking eggs into saucer and sliding into simmering water
   c. sliding broken egg from sauce into water with vinegar and salt added.
   d. out of refrigerator

3. Demonstrate: Top of stove.
   a. fried 425°F High Temperature
   b. fried 300°F Low Temperature
   c. Compare quality
Lesson 4.

Module I: Breads and Breakfasts

LESSON CONTENT

4. Scrambled- Quantity Cookery--add ½ c. Bechamel sauce to 2 eggs. Oven method, Steamer method, Steam table

5. Omelets
   - Cooked to order
   - Quantity- Baked in Oven
   - Variety: Leftover meats or cooked beans, left over eggs
   - Vegetable- Onion, tomato, green pepper, green peas, green beans, etc.
   - Cheese- Swiss, cheddar, drained cottage, etc.
   - Jelly, Meat, Fruit; (Crushed pineapple with curry)
   - Pineapple or fruit cocktail with coconut
   - Spanish, Cheese, Capers
   - Western- Ham, diced green pepper and sauted onion.

6. Cooked eggs to be used in egg cutlets, creamed eggs, etc.
   - Saves labor
   - Break eggs into oiled counter pan, cook in steamer or bake in oven covered.
   - Cook to doneness of hard cooked eggs then chop
   - Save peeling eggs separately.

II. Methods of Cooking breakfast meats.

1. Bacon- Cooked by dry heat method
   a. Oven-fried- Method of choice for Quantity. Remove one hour prior to panning bacon. Arrange on sheet pan, so that lean slightly overlaps fat of next slice bacon.
   b. Blanched- Then cooked crisp to order
      - Cooked in oven approximately 20 minutes. Fat drained off, bacon stored till ordered.
   c. Grilled
   d. Pan Broiled
   e. Broiled

2. Ham
   - Usually partially or fully cooked
   - Sliced ¼" to 1/8" thickness
     a. Pan-broil- cooked in pan, drain fat as it accumulates
     b. Grilled
     c. Broiled- 3-5 Minutes

CLASS ACTIVITY AND EVALUATION

Prepare scrambled eggs in steam table
a. Country style (recipe in FOOD FOR FIFTY, page 208)
b. Scrambled and add water
c. Scrambled and add milk

5. Refer to Food for Fifty- Page 209
Demonstrate cooked to order and demonstrate cooked on grill in quantity.
Scant 4 oz. ladle of beaten egg makes one 2-egg omelet.

1.a. Refer to recipe Food for Fifty p. 304
Demonstrate- Panbroiling
<table>
<thead>
<tr>
<th>LESSON CONTENT</th>
</tr>
</thead>
</table>
| 3. Canadian Bacon (Smoked boneless loin of pork)  
   Cooked same way as Ham |
| 4. Link Sausage  
   Same methods as bacon  
   Preferred method for Quantity is oven at $400^\circ F$ for 10-15 Min. |

<table>
<thead>
<tr>
<th>CLASS ACTIVITY AND EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>III. Selection and Storage</td>
</tr>
</tbody>
</table>
| 1. Ham  
   - Years ago were so fully cured and fully preserved could store without refrigeration  
   - Still available particularly in Southern U.S.  
   - Now have a quick cured product and which is highly perishable - Must refrigerate  
   - The process involves fixing color - Smoking in smokehouse, which cooks the ham  
   - Hams may be partially or fully cooked  
   - Presliced in:  
     - 1/16 inch raw cured Ham - thinner for items such as Virginia cured ham - it's raw  
     - 1/8 or 1/4 partially or fully cooked  
   - Here - More economical if boned  
   - In freezer storage - wrapped carefully to prevent freezer burn  
   - 0°F is recommended temperature  
   - Salt speeds up rancidity so freezer life is shortened to 6 months. |

| 2. Bacon -  
   - Given a short cure which fixes color and develops flavor  
   - Should be well streaked with lean  
   - Strips not longer than 8-10"  
   - Freezer storage - 1 month - at 0°F  
   - Regularly sliced- 20-22 slice  
   - Hotel Sliced- 28-30 slice  
   - Regular Pack, shingle pack, or flat pack on parchment paper  
   - Slab Bacon- With or without rind, cut 18-20 slice #1 |

Show examples of various packs.
Lesson 4

Module I: Breads and Breakfasts

LESSON CONTENT

3. Sausage
   - Usually made from fresh pork trimmings
   - Purchased in natural or artificial casings
   - Breakfast sausage - Prefer 12-16 links per pound
   - Breakfast sausage - 3-4" diameter and sliced 12-14 slices per pound
   - Fresh sausage also available in bulk.
   - Numerous variety: Fresh, smoked, fully cooked, partially cooked (brown and serve)
   - Directions on package regarding cooking is best guide
   - Refrigerated storage for short periods
   - Freezer storage - 3 months at 0°F.

4. Textured Vegetable Protein Products
   - More and more well accepted
   - Nutrient content compared to meat
   - Stored refrigerated like bacon and ham.
   - Freezer - 3 months.

IV. Care of Meat
   - Check weight of meat delivered with that called for on invoice
   - Chilled products should not be above 40°F
   - Should be stored at 32°F Humidity 80-90%, can be stored 3-4 days for fresh meat.
   - Stored away from other foods
   - Foreign flavors may be traced to fruits and vegetables stored in some refrigerator
   - Light cured meat is stored wrapped or covered
   - Frozen meat thawed - Cooked at once
   - Cooked meats, stored well covered, under refrigeration.

A. Eggs - Handout #4 "12 Guides to Breakfast Egg Cookery"
   Mario, Quantity Cookery p. 346 & 347
   - High Quality egg out of shell:
     - Yolk will stand up high and firm above white
     - Diameter small, centered in white
     - White high ratio of thick, firm white that stands up
     - Odor Mild egg aroma.
   - Grades - is on voluntary basis
     - Federal consumer grade: AA (fresh fancy), A & B
     - Also classified for size

CLASS ACTIVITY AND EVALUATION

4. Have available
   Morning Star Farm's Bacon, Ham, Link Sausage
   Prepare and cook samples of each
   Taste and evaluate these products and compare flavor and appearance with actual meat products.

Break egg and evaluate quality - Compare
BREAKFAST EGG COOKERY

Although eggs are featured widely on luncheon menus, sometimes in elaborate forms, their simplest preparation is at breakfast. At breakfast, however, both the dining room staff and the kitchen are likely to receive the largest number of customer complaints. Patrons will object if the eggs are delayed, if they are lukewarm instead of hot, if they are too soft, too firm or poor in appearance. Sometimes the complaints are unfounded, but more often they are justified. To handle orders quickly and efficiently, the breakfast cook must set up his station each morning so that all foods, utensils and equipment are ready for immediate action. At least one hour before breakfast, eggs should be removed from the refrigerator so that they can reach room temperature, the best temperature for boiling, poaching, omelets and other egg dishes. The eggs should be in carton separators or in a bowl nearby so that they can be cracked, opened and turned into the proper utensil with a minimum of motion.

F fans for frying eggs or omelets should be seasoned (p 104), wiped clean, and within arm's reach. There should be enough pans for the anticipated breakfast business. A container of clarified butter should be as close to the cooking area as possible. Towels for handling equipment, and clean towels of cloth or paper for wiping excess fat from plates should be available. Flexible as well as firm spatulas, forks and wire whips for beating, slotted spoon, skimmer and knives should be in position. Bacon should be blanched for crisping at the last moment. Broiler, griddle and range top should be preheated. The proper pan should be filled with water for poaching eggs. Quartz heating lamps, if used, should be switched on. Once the routine is learned and set up, it can be easily followed from day to day. Although different egg dishes such as omelets or shirred eggs require different methods of preparation, there are some general procedures which apply to all egg cookery.

12 GUIDES TO BREAKFAST EGG COOKERY

(1) All eggs for breakfast cookery should be fresh not only for the sake of flavor but because stale eggs cause problems in poaching, boiling or frying. There are a number of ways of judging freshness, but for the busy cook behind the range, the simplest way is to open it onto a dinner plate. When it is fresh, the yolk is high and rounded rather than flat or broken, and the white clings to the yolk in a compact shape; the white should not be watery or run to the rim of the plate.

(2) Since freshness is so important to successful egg cookery, the breakfast cook should immediately inform his supervisor if eggs show signs of staleness or of incipient spoilage such as a strong odor.

(3) Eggs should be removed from the refrigerator at least one hour before the dining room is opened for breakfast to allow the eggs to reach room temperature when they are best for most egg dishes. After the breakfast period, any unused eggs should be returned to the refrigerator or to a cook who needs them at the time. If breakfast is served over a long period (from 7 to 11 A.M.), eggs should be removed from the refrigerator in batches, allowing enough time to reach room temperature.
(4) Learn to thoroughly know the performance characteristics of the range tops, open burners or griddle where egg dishes are prepared. If one part of the range top is consistently hotter than another, be prepared to move pans to the positions which best serve your purpose.

(5) To open eggs, crack them sharply against the side of a dish, the side of a cutting board or any hard surface as close as possible to the utensil or dish in which the eggs are to be dropped. Hitting the eggs too lightly causes difficulty in opening them; hitting them too sharply may break the yolks. Experience will guide you rather quickly.

(6) Eggs may be opened using one or both hands. At one time chefs insisted that all eggs be opened with two hands, using the right thumb to remove any white remaining in the shell. Nowadays, busy breakfast cooks use one hand to open eggs. It is a special knack, but not a difficult one which an instructor or supervisor can demonstrate. To open an egg—with one hand, hold the hand over the egg, crack the bottom against a hard surface, move the front of the shell forward with the thumb and first two fingers, move the back of the shell rearward with remaining fingers, and drop the egg into the container or pan. This will take a moderate amount of practice and can be learned when eggs are being opened in quantity, and when yolks and whites are to be mixed. If yolks and whites are to be separated, both hands should be used to move the yolk back and forth, permitting the white to drop into a container.

(7) When learning to open eggs by hand, or if in doubt about the freshness of eggs, always open one or two eggs into a dish before adding them to the pan or griddle. Any piece of shell can then be removed. If yolks break, they may be used for another purpose.

(8) The kind of shortening you use for frying will be specified by your supervisor. The best quality shortening, however, for egg frying, omelets, scrambled eggs, etc., is clarified butter (p 98). Butter flavor is desirable for eggs, and the process of clarification raises the smoking point of butter so that it can withstand higher heat without turning black.

(9) When making eggs in quantity, such as scrambled eggs for a large breakfast party, beat the eggs slightly, and let them flow through a china cap. Straining will eliminate any shell particles, hard pieces of white, etc.

(10) Coordinate your work so that breakfast foods that require different lengths of cooking times will be ready simultaneously. If link sausages that take 12 min cooking time are to be served with eggs, they should be partially cooked in advance and kept in a warming unit to be finished when the eggs are ready. If bacon is to be crisped at the last moment, plan to take it off the fire as close as possible to the moment the eggs are finished.

(11) Hot egg dishes should be hot. Plates should be kept in a plate warmer. If plate covers are available, they too should be kept in a plate warmer and used whenever practical.

(12) Listen to orders carefully. A waiter may use slang terms such as “up,” “straight up” or “sunnyside up,” meaning the eggs are not to be turned; or “over easy,” meaning gently fried on both sides; or “soft scrambled” or other terms. If in doubt about an order, ask the waiter precisely what is meant.
Scrambled Eggs

Two or three eggs are normally served for a portion although occasionally there may be an order for a single scrambled egg. Usually eggs are not scrambled in the same pans used for omelets or for frying eggs. The reason for this is that in the process of scrambling a small amount of egg residue is often left on the pan, and washing is necessary. When scrambled eggs are prepared on a griddle, any residue is simply scraped off. Unless otherwise ordered, scrambled eggs should be soft but not liquid. No white should be evident. Particles of eggs should be uniformly small and tender. Milk, cream or water may be added in amounts no larger than a tablespoon for three eggs. Water makes the eggs more tender, milk and cream, more firm. Water is neutral in flavor; milk and cream have noticeable flavors. The flame under the pan should be lower than that for fried eggs or omelets in order to prevent formation of large lumps of egg.

Before starting work: Plan to use a cast aluminum pan or pan lined with stainless steel or tin. Pan should have bottom diameter of 6 in. Make sure pan is clean with no film of fat or film caused by fat fumes in kitchen. Keep a bowl or dish on hand in which three eggs can be beaten without spillage. If toast is used as a garnish, plan to prepare it under a broiler or in an automatic toaster so that it is ready when eggs are done.

(1) Assemble the following ingredients:

- 3 eggs
- Clarified butter
- Salt

(2) Open eggs into small bowl. Add milk, cream or water (no more than 1 tablespoon) if this is the custom in the place you are working. Do not pour milk, cream or water indiscriminately into eggs, but measure it.

(3) Beat eggs with kitchen fork until whites are no longer visible.

(4) Dip tip of fork in salt box. The wet ends of the fork tines will cause a small amount of salt to adhere. Do not overseason. Pepper is not necessary as a seasoning.

(5) Pour half of a No. 1 ladle (equal to 1 tablespoon) clarified butter into pan. Place pan over low flame.

(6) Swirl butter so that bottom and part of side of pan are covered.

(7) Add eggs. Using fork, stir frequently though not constantly, moving eggs as they coagulate. Some cooks prefer to use a flat or basting spoon for stirring. The same spoon may be used for removing eggs from pan. Cook until eggs are soft scrambled. Do not overcook. Eggs will continue cooking somewhat after being removed from fire.

(8) Remove eggs from pan onto warm plate. Shape eggs in an oval mound in center of plate.

(9) Garnish with toast, if ordered, cut diagonally and placed alongside, not underneath, eggs. If necessary, notify waiter to pick up eggs at once while warm.
Scrambled Eggs, Country Style.—Do not beat eggs before cooking. Add whole eggs to pan with clarified butter. Use a moderate to strong flame. Beat eggs in pan so that whites and yolks are separately visible.

Scrambled Eggs, in Quantity.—Scrambled eggs served to large groups are made in advance. Heat butter in saucepan or saucepot set in steam table. Add eggs. Stir frequently with wire whip, scraping bottom and corner of pan, until eggs are soft scrambled. Add milk, cream or water (using no more than 1 tablespoon per 3 eggs) after scrambling to keep eggs from coagulating in heavy layers. Béchamel sauce (see Chap. 8), made with light cream or half milk and half cream, may be added after scrambling to keep eggs loose rather than bunched. Use 1/2 cup béchamel sauce to each 2 dozen eggs. Keep eggs warm in a double steam table. That is, the container with eggs should be set in a second container which is in contact with the water in the steam table. Eggs made with béchamel sauce do not have the delicate flavor of eggs scrambled to order, but it is the most practical way of handling them for parties where eggs are prepared in advance and must be kept warm until serving time.


Eggs are also used in dishes such as egg cutlets, scalloped eggs, and meat and egg scallops. Acceptable standards may be maintained in these dishes when the component parts are well prepared before combining and further preparation processes do not alter the characteristics of the eggs from those given for hard-cooked eggs. Unless slices of hard-cooked eggs are a requirement, fresh eggs may be broken into an oiled counter pan (egg depth not to exceed 2 inches) and cooked uncovered in the steamer to the desired degree of doneness (usually about 20 minutes). The same procedure can be followed for baking in the oven except the pan should be covered and set into a larger pan containing boiling water. Approximately 45 minutes in a 400°F oven should be adequate for hard cooking the eggs after which they can be chopped with the time-consuming task of shelling each egg eliminated.
## SCORECARD FOR COOKED EGG PRODUCTS

Evaluate against characteristics of a high quality product using a 5-point scale—5=most desirable, 1=least desirable.

<table>
<thead>
<tr>
<th>Product</th>
<th>Appearance</th>
<th>Texture</th>
<th>Tenderness</th>
<th>Flavor</th>
<th>General Acceptability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard-cooked</td>
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<tr>
<td>Poached</td>
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<tr>
<td>Fried</td>
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<tr>
<td>Baked</td>
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<tr>
<td>Scrambled</td>
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<tr>
<td>Omelet</td>
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</table>

### Characteristics of a High Quality Product:

- **Hard-cooked**
  - White: Firm, but tender
  - Yolk: Firm, but not rubbery
  - No discoloration at juncture

- **Poached**
  - White: Set, but jellylike and opaque
  - Yolk: Slightly set and well veiled with light albumin covering
  - Generally round and compact

- **Fried**
  - White: Firm, but not rubbery, free from browning or crisping and bubbles
  - Yolk: Set, but not firm
  - Generally round and compact

- **Baked**
  - White: Firm, but not rubbery, free from crisping
  - Yolk: Set, but not firm

- **Scrambled**
  - Loose, moist, tender rolls of yellow, free from traces of white or evidence of browning

- **Omelet**
  - Light, delicately brown, tender
Lesson 5

Module I: Breads and Breakfasts

I. Instructor Preparation for Class Activities

A. Duplicate sufficient copies of Handouts
   1. Breakfast Cook
   2. Using the Griddle
   3. Scorecard for Griddle Items

B. Market Order
   1. Frozen Waffles
   2. Pancake Syrup
   3. Sorghum Molasses
   4. Banana
   5. Fresh Apple
   6. Cornmeal
   7. Flour
   8. Baking Powder
   9. Salt
   10. Milk
   11. Eggs

II. References


# FOOD SERVICE EMPLOYEE SHORT COURSE

## Lesson 5

### Module I: Breads and Breakfasts

## LESSON CONTENT

### I. Introduction

A. Pour batters—popovers, griddle cakes, and waffles.
   - Proportion of flour to liquid (by measure) is 1 to 1.
   - Basic ingredients: flour, a leavening agent, a liquid, flavoring (sugar, salt, vanilla, spices), fat, eggs

B. Nutrient contribution: mainly CHO, Protein, B complex vitamins

C. Breakfast Cook

### II. The Griddle

1. **Versatility**
   - Meats, eggs, pancakes (griddle cakes), potatoes, french toast, etc.
   - Set for various temperatures

2. **Using the griddle**
   - A heavy flat-top piece of equipment
   - Heated by gas or electricity

3. **Guides to cleaning and using griddle**
   - Handout #2: 16 Guides to cleaning and using grill Mario, Quantity Cooking Page 342, 343, 344

4. **Review Meat Cookery**
   - Identify.

### III. Griddle Cakes

1. Adjusting recipe for 1/4th recipe of griddle cakes, Food for Fifty page 122.
   - Table for adjusting recipes p. 57 Food for Fifty
   - Directions for adjusting recipes p. 56 Food for Fifty

2. **Variety**
   - Crumbled bacon, shaved ham, sliced bananas, drained crushed pineapple, nuts, coconut, chocolate chips, chopped apples
   - Light as sponge cake (angel food cake) pears, etc.
   - Fork tender
   - Smooth brown crust, not sticky or rubbery.
   - Uniformly round.

### CLASS ACTIVITY AND EVALUATION

Participants will name basic ingredient in pour batters.
Discuss Handout 1—Breakfast Cook

Participants will be gathered around the grill.
Discuss Handout 2—Using the Griddle
Clarify questions
Ask for a volunteer to light the grill and set appropriate temperature for cooking griddle cakes (390°F.), French bread (375°F.) and cornmeal mush (375°F.)
Cook breakfast meats left over (fresh—uncooked) from Lesson 4, using preferred method of cookery.

III. Group I—Adjust Griddle Cake recipe
Ask participant how they vary griddle cakes

Group I—Prepare Griddle Cakes
a. Cook 1/2 of batter as directed in recipe.
b. Beat remaining batter for 2 min.
   then cook as directed in recipe.
c. Label each batch of pancakes
d. Keep warm until ready to evaluate quality.
e. Distribute scorecards
Observe and taste frozen waffle product.
## Lesson Content

### 3. Left-over batter
- Cook and freeze (individually)

### VI. Waffles
- Convenience item- frozen
- Cook and freeze in facility- toast and serve
- Variety- Peanut butter, creamed chipped beef, Au Gratin asparagus, etc.

### V. French Toast
- Known in France as "pain perdu" (Lost bread)
- Stale Bread, dipped in egg and milk and browned on grill
- Needs to be at least two day old bread
- Variety of breads can be used:
  - French Bread
  - Sour Dough Bread
  - Whole wheat, Rye, Texas Thick Bread
- Variety of toppings:
  - Syrup, Honey, Jam, Jelly, powdered sugar, peanut butter, etc.
- Standards of High Quality
  - Moist but not soggy
  - Evenly browned to a golden hue
  - Fork Tender
  - Mild, pleasant flavor
  - No taste of greasiness

### VI. Mush (Cornmeal)
- Mush in South is also made of grits
- In the East is called "Johnny Cake" (Not named after Johnny Carson)
- Convenient- Cook mush day before or keeps several day, then brown on griddle, slices as desired.
- Slices dipped in milk, then rolled in flour causes slices to brown beautifully.
- Standards of High Quality
  - Evenly browned to a golden hue
  - Free from raw corn meal taste
  - Milk, pleasant flavor
  - No taste of greasiness

## Class Activity and Evaluation

16 Guides to cleaning and using grill

Clarify questions.

Ask for volunteer to demonstrate scraping griddle as if it were in use.

### V. Group II- Adjust French Toast recipe to serve 16 portions
- Prepare and Cook French toast
  a. Preheat grill to 375 Degrees and cook 6 slices.
  b. Preheat Grill to 450 F. and cook 5 slices.
  c. Preheat grill to 3000 F. cook 5 slices.
  d. Label each and keep warm.

Class will evaluate and score each of the 3 batches of French toast, griddle cakes and fried mush.

### VI. Group III- Use griddle and brown off mush slices. (at 450° F. and 375° F.)
Breakfast Cook

The breakfast menu is the one bill of fare that normally does not change from day to day. Several times during the year, perhaps, modifications may be made on the breakfast menu to include seasonal fruits such as berries, melons, etc. Otherwise the menu and the routines of the breakfast cook are more or less constant even though there are days of the week when the breakfast cook is busier than normal because of increased dining room volume. Frequently the breakfast cook is also the fry cook or may assist the fry cook before and during the midday meal. Almost all hot breakfast dishes, with the exception of hot cereals, are made to order. This means that the breakfast cook is often inundated with short orders that need immediate individual attention. While many of the menu items in a kitchen, such as soups, sauces, braised dishes, etc., are heavily influenced by European tradition, most breakfast dishes in this country are largely American with some English influence. Breakfast egg dishes like omelets and shirred eggs frequently appear on luncheon menus with fillings and garnishes. The ability to master egg cookery, therefore, becomes an asset for the breakfast cook who would advance to the job of fry cook and other higher positions. In some restaurants the breakfast cook is assisted by another worker such as a pantry worker or vegetable cook who may report for work an hour or so before the dining room is open for breakfast. The assistant may preheat equipment, bring water to a boil for coffee, start heating the steam table, receive morning supplies such as bread and rolls, etc. In very large restaurants or institutional feeding establishments, there may be a number of breakfast cooks depending on the dining room or coffee shop volume.

JOB SUMMARY

The breakfast cook (1) consults headwaiter or dining room captain on anticipated or special breakfast attendance; (2) orders and receives from storeroom standard breakfast items such as cereal, eggs, butter, etc.; (3) prepares hot cereals for storage in steam table during breakfast; (4) mixes batter for griddle cakes or waffles, and prepares griddle cakes or waffles to order; (5) mixes batter for French toast and prepares French toast to order; (6) prepares egg dishes such as scrambled, fried, poached, shirred, omelets, etc.; (7) may prepare scrambled eggs in quantity for large groups eating at one time; (8) blanches and finishes bacon; (9) grills and fries ham; (10) fries, grills or bakes sausage; (11) may prepare potatoes such as French fried, hashed brown, home fried, etc.; (12) toasts bread, English muffins or other muffins; (13) sautés corned beef hash, broils lamb chops and prepares other breakfast meat items.
MANUAL PROCEDURES

He (1) boils salted water in saucepans and stirs in cereals; (2) simmers and stirs cereals until done; (3) turns cereals into steam table pots and stores cereals for service; (4) spoons portions of cereal into appropriate dishes; (5) arranges bacon slices in baking pans, and blanches bacon until half cooked; (6) finishes bacon to crisp stage by placing and turning on griddle; in frying pan or under broiler; (7) cuts sausage into separate links, arranges sausages on baking pan, in frying pan, on griddle or under broiler and cooks until half done; (8) finishes sausages when individual orders are received; (9) places thin ham slices under broiler or on griddle and cooks until browned; (10) poaches eggs in water and vinegar; (11) beats eggs for omelets and pours eggs into frying pans; (12) fills, folds and garnishes omelets; (13) melts fat in frying pan or griddle, and fries eggs on one side; turns eggs by flipping or with spatula; (14) mixes eggs with fork or wire whip, pours eggs into frying pans with melted fat and stirs eggs with fork until scrambled; (15) garnishes egg dishes with bacon, ham, sausage, etc.; (16) makes batters from mixes by adding eggs, milk, etc., and reserves batters for griddle cakes; (17) mixes fresh batters by machine or by hand, combining flour, baking powder, salt, sugar, eggs and milk for griddle cakes and waffles; (18) pours batter from pitcher or from ladles onto griddle and onto waffle iron; (19) turns griddle cakes with spatula and stacks griddle cakes or waffles on serving dishes; (20) cuts boiled potatoes with knife and slices or chops potatoes; (21) sautes potatoes; (22) deep fries previously blanched potatoes; (23) sautes corned beef hash; (24) toasts bread or muffins in automatic toaster or under broiler.

EQUIPMENT AND UTENSILS

The breakfast cook uses (1) ranges; (2) broiler; (3) deep fat fryer; (4) mixing machine; (5) griddle; (6) steam table; (7) reach-in refrigerator; (8) waffle iron; (9) frying pans; (10) baking pans; (11) saucepans; (12) wire whips, spatulas, spoons, forks; (13) French knives; (14) measuring containers; (15) dispenser for salt, pepper, etc.

WORKING CONDITIONS AND HAZARDS

He (1) works under considerable pressure in front of ranges, griddle, steam table, broiler and deep fat fryer; (2) is subject to burns from sputtering fat.

PLACE IN JOB ORGANIZATION

The breakfast cook may be promoted from short order cook, counterman or pantry worker. He may eventually become fry cook or broiler cook.
USING THE GRIDDLE

The special piece of equipment which the breakfast cook must be able to use skillfully, and which other cooks may or may not use, is the griddle. It is widely found in coffee shops, breakfast shops and counter restaurants where much of the cooking takes place immediately adjacent to the serving area or in view of the customers. It is a heavy flat-top utensil with its source of heat, either gas or electric, beneath the top plate. For making griddle cakes, it is the only satisfactory piece of equipment. It may be used for certain egg dishes, ham, bacon, sausage, etc. Normally heavy-duty kitchen equipment such as ranges, steam tables, etc., are cleaned by a kitchen helper. Keeping the griddle clean, however, is important during as well as after its use, and is usually the responsibility of the breakfast cook.

16 GUIDES TO CLEANING AND USING THE GRIDDLE

1. Any griddle which is new or has not been used for a long period, such as one in a seasonal resort kitchen, and which is covered with a grease coating to prevent rust, must be carefully cleaned with a grease-dissolving solution.

2. Before a griddle can be used, it must be "seasoned"—that is, a film of fat must be applied in such a way that a nonstick surface covers the griddle. After a griddle has been in use for several meals or for an entire day and is thoroughly cleaned, it must be reseasoned.

3. To season a griddle, follow these steps:
   (a) Set the temperature at 400°F and preheat griddle.
   (b) Pour unsalted shortening or oil onto griddle, using enough to coat entire surface.
   (c) Spread shortening over entire surface with a heavy clean towel, a fat mop or brush.
   (d) Allow shortening to remain until it smokes.
   (e) Wipe griddle clean.
   (f) Repeat steps (b) to (e) at least two times, wiping well after each application. Griddle is now seasoned.
   (g) If some small spots on griddle later seem to cause food to stick, scrape them with a spatula, and reapply shortening as above.

4. Griddle should be scraped after individual orders or batches of food have been cooked to remove food particles or residue. Scrape with edge of spatula. Remove food particles, and scrape fat toward rim of griddle to drain off. Wipe rim of griddle if all fat does not flow off.

5. At the end of the shift or the end of the day, clean griddle for the next meal, following these steps:
   (a) Set temperature of griddle at 150°F.
   (b) Scrape off any remaining food or residue.
   (c) Pour griddle-cleaner solution onto surface, using quantities suggested by manufacturer. Spread with cloth so that entire griddle is covered.
   (d) Let solution stand 5 min.
   (e) Scrape solution to rim of griddle to run off. Wipe griddle dry.
   (f) Pour hot fresh water onto griddle to rinse and remove cleaning solution.
   (g) Scrape water to rim of griddle. Wipe dry with clean cloth.
   (h) Reseason griddle as described previously.

6. Once a week or more—often if necessary, rub surface of griddle...
with griddle stone, following grain of metal. This removes any residue remaining after routine cleaning and leaves a fresh griddle top. It must be reseasoned as previously described before using again.

(7) Always preheat the griddle to the designated temperature considered best for the specific food to be cooked. Eggs, for instance, should be fried on the griddle at 200°F, bacon at 350°F, and griddle cake at 390°F. Incorrect temperatures will give poor results.

(8) Make a note of any area of the griddle where the heat distribution may be irregular, that is, cause spotty cooking or uneven browning. Cook the food in such areas for a longer or shorter period than usual. Modern griddles with good performance characteristics provide even heat throughout the griddle.

(9) Uneven browning or abnormal cooking will occur if the temperature setting is incorrect. During a busy breakfast period, controls may be inadvertently set to improper temperatures. Make corrections if necessary. If an unusual heat response continues, report this fact to your instructor or supervisor. Thermostats may need correction or replacement.

(10) Large griddles are usually fitted with controls allowing different temperatures in different sections of the surface. Use whatever settings are necessary for efficient operation during busy and slack periods.

(11) Remember that scraping the griddle during its use is not only necessary for sanitary reasons but to prevent flavor transference from one food to another. A dish of plain scrambled eggs should not convey the flavor of sausage or other food previously cooked on the griddle.

(12) Use a long offset spatula for turning most foods. Wipe the spatula clean after each use. Do not attempt to turn large pieces of food with a small spatula intended for small portions.

(13) Check the accumulated fat in the removable tray beneath the griddle and empty it as often as necessary. It should be cleaned daily.

(14) When a large batch of cold food is placed on a griddle, its temperature will drop precipitously. In a well-constructed griddle the recovery period will be rapid. As the breakfast cook, however, you must anticipate such temperature variations. A griddle which is fully loaded at one time will suffer a greater heat loss than a griddle on which individual orders are placed periodically. Govern the cooking time accordingly.

(15) Foods which tend to run, such as beaten eggs, require more griddle space than compact foods such as whole eggs, bacon, etc. Allow this larger area to prevent different foods from mingling.

(16) Although the surface of a griddle is made of hard metal, it can be dented or impaired with the careless use of utensils. Do not strike it with the side of a spatula. When scraping the griddle, move the spatula with slow even pressure; don't hit the griddle surface. Do not use steel wool or coarse metal scrapers for cleaning.
Evaluate against characteristics of a high quality product using a 5-point scale—5=most desirable, 1=least desirable.

<table>
<thead>
<tr>
<th>Product</th>
<th>Appearance</th>
<th>Texture</th>
<th>Tenderness</th>
<th>Flavor</th>
<th>General Acceptability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Griddle Cakes</td>
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<tr>
<td>French Toast</td>
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<tr>
<td>Mush (Cornmeal)</td>
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</tbody>
</table>

Characteristics of a High Quality Product:

**Griddle Cakes:** Light as sponge cake (angel food cake)
- Fork tender
- Smooth, brown crust, not sticky or rubbery
- Uniformly round

**French Toast:** Moist, but not soggy
- Evenly browned to a golden hue
- Fork tender
- Milk, pleasant flavor
- No taste of greasiness

**Mush (Cornmeal):** Evenly browned to a golden hue
- Free from raw corn meal taste
- Mild pleasant flavor
- No taste of greasiness
Lesson 6

Module I: Breads and Breakfasts

I. Instructor Preparation for Class Activities:
   A. Duplicate sufficient copies of Handouts:
      1. Breakfast Cookery--Production Sequence
      2. Cooking Breakfast Cereals
      3. Scorecard for Cooked Cereals
      4. Evaluation of Short Course
   B. Duplicate sufficient copies of Recipes: Bulgar Wheat, Farina (Cream of Wheat) and Brown and White Rice
   C. Market order for: Brown rice, white rice, oatmeal--old fashioned and instant variety pack, Farina, Bulgur,
   D. Cook cereal--Cover one pan of cereal and leave uncovered another pan to demonstrate salt deterioration of quality.
   E. Have available a copy of Food for Fifty to use as reference.
   F. Be sure a blackboard, chalk and eraser is available.
   G. Assemble wooden spoon, wire whips, oatmeal and cooking pan for demonstration.

II. The following references provide more information on the subject of this lesson:


Kotschevar, L.H., Quantity Foods Production, Boston, Mass., Cohners Book International Inc.

Lesson 61

Module I: Breads and Breakfasts

LESSON CONTENT

I. Cereals

1. Define - Seeds of the grass family and are used to make breakfast foods, starches, flours, breads and pastes.

2. Nutrient Contribution:
   a. Economical source of energy
   b. Significant source of protein
   c. Whole grain - source of trace minerals and B vitamins

3. Principles of Cereal Cookery:
   a. Mainly starch - starch cookery
   b. Cook to improve palatability and rate of digestion
   c. Water and heat and starch - Gelatinization (swelling of starch granules to form viscous mass).
   d. Starch will not dissolve in cold water.
   e. Factors that determine cooking time:
      a. Fineness of the cereal grind
      b. Amount of bran and cellulose
      c. Smaller size particle will cook more rapidly because more surface area is exposed
      d. Presence of other substances in addition to starch
      e. Some cereals have been preheated and/or reduced in particle size, so cook quickly
   f. Melted fat separates starch granules
   g. Gelatinized starch in cereals and rice tends to be sticky
   h. Gelatinization of starch in cereal, rice, and paste products causes an increase in volume.
   i. Dextrinization of starch reduces amount of gelatinization.
   j. Products high in starch tend to be bland in flavor
   k. Vitamins and minerals used to enrich rice, cereals, and paste products are water-soluble.
   l. Gelatinized starch exposed to air becomes crusty as water evaporates.

CLASS ACTIVITY AND EVALUATION

1. Ask participant to define cereal. Name a starch made from cereals. Also name a paste not from cereals.

2. Participant discuss nutrient contribution of cereals.

3. Ask class to describe how corn starch or flour is added to meat juice to thicken it for gravy. Relate that to how cream of wheat is cooked.
   a. Refer to page 270. Food for Fifty.
   (Time differences for cooking various cereals.
   b. Ask participants for samples:
      a. Quick cooking and instant oatmeal, cream of wheat, and etc.
      b. Demonstrate volume of ½ cup rice before and after cooking.
      c. Show participants cream of wheat after cooking and left uncovered.
### LESSON CONTENT

1. **Cooking Equipment**
   - pot on top of stove
   - steam-jacketed kettle
   - steamer
   - wire whip is used for mixing

2. **General Suggestion to apply in cooking all cereal**
   - Add cereal slowly to boiling water (cooking starts immediately shortens cooking time)
   - Add salt - brings out flavor.
   - Add small amount of fat - separates starch granules, prevents sticking.
   - Add cereal gradually so that water continues to boil - prevents lumps from forming.
   - Stir with wire whip during early part of cooking - exposes all surfaces evenly.
   - Do not stir excessively - over stirring breakdowns cooked cells and causes sticky gummy mass.

3. **Standards of High Quality**
   - No pasty appearance or taste, distinct particles, granules or flakes.
   - Just moist enough to hold shape in bowl when served.
   - Free from lumps.
   - Bland flavor free from raw starch taste.
   - Enough salt to bring out flavor, but no salty taste.

4. **Recipes - Preparation of Cooked Cereals**
   - Proportions of Cereal to Water -- 1 lb. cereal to one gallon water.
   - Follow cooking directions on package.

5. **Taste cooked cereal** - Participants describe quality of oatmeal cooked with minimum stirring and over-stirring.

### CLASS ACTIVITY AND EVALUATION

4. Ask participants to describe cereal cookery at home.
   Ask participants if home method would be appropriate for quantity cookery.

5. Participants will discuss the why of each step in cooking.

6. Participants will describe a high quality product.

7. Refer to page 189 Food for Fifty
   Group I Cook Bulgur Wheat
   Group II Cook Cream of Wheat
   Group III Cook White Rice
   Cook Brown Rice
   Demonstrate oatmeal cooked with over-stirring compare with over cooked, over-stirred.
   Compare cooking time of Bulgur and cream of wheat.
**LESSON CONTENT**

I. Considerations in breakfast menu planning:

   A. Factors relating to clientele
      1. Age, sex, occupation
      2. Climate and Season
      3. Flavor and appearance of foods
      4. Variety

   B. Factors relating to management
      1. Type foodservice
      2. Number to be served
      3. Budget
      4. Equipment
      5. Number and experience of employees
      6. Distribution of work
      7. Availability and seasonability of foods
      8. Food on hand
      9. Recipes

   C. Menu pattern or meal pattern
      1. Established by regulation - School breakfast
      2. Established by clientele preference
      3. Established to meet certain nutrient requirements
         - 1/3 daily needs
         - a minimum of three food groups represented in menu
         - all food groups represented
         - diabetic, Sodium restricted diet
         - obesity - Eating fast contributes to obesity.
            - Modify menu so that "eater" would need to take more time to eat.
            - Modify food preparation methods to lower calorie content & food.
            - Modify menu to reduce sodium content.

---

**CLASS ACTIVITY AND EVALUATION**

*Refer to Food for Fifty pages 541-547

*Each participant is to list a minimum of three factors that influenced what he/she ate for breakfast.

Use Dairy Council food models to demonstrate variety in color, texture, fiber, sodium, protein and fat.
## LESSON CONTENT

### II. Unique features of breakfast meal.

1. Food is cooked to order
2. Food takes short amount of time to prepare
3. Food should not be prepared in advance and held on steam table  
   (Note: The food loses quality at room temperature and will lose appetite appeal.)
4. Customers want to eat quickly  
   (Note: Breakfast is not a conversation meal and some customers often have a limited time.)
5. Many condiments are served
6. Food must be served hot
7. Breakfast may be eaten any time of the day.

### III. Continental breakfast

1. Is a light breakfast  
   a. Fruit or juice  
   b. Toast or pastry  
   c. Coffee  
2. Requires no cooking  
3. Is becoming very popular  
   a. Motels  
   b. Hotels  
   c. Restaurants

## CLASS ACTIVITY AND EVALUATION

### II. Participant lists on blackboard some features that makes breakfast unique.

### III. Discuss continental breakfast.

Discuss five meal plan, in some institutions one meal was a continental breakfast.
### Lesson Content

<table>
<thead>
<tr>
<th>IV. Common or Traditional breakfast foods</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Eggs</td>
</tr>
<tr>
<td>a. Scrambled</td>
</tr>
<tr>
<td>b. Fried</td>
</tr>
<tr>
<td>c. Poached</td>
</tr>
<tr>
<td>d. Hard or soft cooked</td>
</tr>
<tr>
<td>e. Omelet</td>
</tr>
<tr>
<td>2. Pancakes</td>
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<tr>
<td>3. Waffles</td>
</tr>
<tr>
<td>4. Bread</td>
</tr>
<tr>
<td>a. Plain toast</td>
</tr>
<tr>
<td>b. French toast</td>
</tr>
<tr>
<td>c. Cinnamon toast</td>
</tr>
<tr>
<td>d. Biscuit</td>
</tr>
<tr>
<td>e. Muffin</td>
</tr>
<tr>
<td>5. Potatoes—Hash browns</td>
</tr>
<tr>
<td>6. Cereal</td>
</tr>
<tr>
<td>a. Hot</td>
</tr>
<tr>
<td>b. Cold</td>
</tr>
<tr>
<td>7. Fruit or juice</td>
</tr>
<tr>
<td>8. Entree</td>
</tr>
<tr>
<td>a. Bacon</td>
</tr>
<tr>
<td>b. Sliced Ham</td>
</tr>
<tr>
<td>c. Sausage</td>
</tr>
<tr>
<td>i. Link</td>
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<tr>
<td>ii. Patty</td>
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<tr>
<td>9. Pastry</td>
</tr>
<tr>
<td>a. Donut</td>
</tr>
<tr>
<td>b. Sweet roll</td>
</tr>
<tr>
<td>c. Coffee cake</td>
</tr>
<tr>
<td>10. Beverage</td>
</tr>
<tr>
<td>a. Milk</td>
</tr>
<tr>
<td>b. Hot tea</td>
</tr>
<tr>
<td>c. Coffee</td>
</tr>
<tr>
<td>d. Hot chocolate</td>
</tr>
</tbody>
</table>

### Class Activity and Evaluation

- Participants will name some foods which they commonly eat at breakfast.
  - Food modules demonstrating common and uncommon breakfast items.

- Will evaluate:
  - Is breakfast monotonous? Colorful? Or in Protein, fat, fiber, sodium, sugar?

- Which food groups are commonly omitted at breakfasts included at breakfasts?

- Ask students to name factors which influenced the traditional and untraditional breakfast which they planned.

- Plan a traditional and a not-traditional menu.
  - Include a menu item from each of the four food groups.
  - Identify food items that do not fit into food groups (four).
LESSON CONTENT

V. Uncommon or non-traditional breakfast Foods- Soup, watermelon, cold leftover pizza, leftovers from dinner, etc.

VI. Preparation

1. Break eggs for
   - Scrambled into-Large container
   - Fried into individual cups
   - Omelet into individual cups
2. Prepare batters
   - Pancakes, waffles, french toast mixture
3. Cook hot cereal
4. Portion fruits
5. Pan entrees
   a. Place meat on pans for cooking
   b. Place pans in oven (Note: Meat may be paned in evening before breakfast. Meat may be cooked in oven, on grill, or in fryer. Some menus call for meats to be cooked to order.
6. Warm plates

VII. Timing

1. All food at proper temperature at service time.
2. Serving plate: Preheat to help keep food hot, serve as soon as possible.

GOAL: Hot food items complete cooking at about same time.
Answers to assignment sheet or Handout #1

1. Make coffee
2. Prepare hot cereal- 30 minutes
3. Pour juice
4. Fry bacon- 10 minutes
5. Prepare eggs- 4 minutes
6. Make toast- 2 minutes
7. Plate bacon, eggs, toast

CLASS ACTIVITY AND EVALUATION

What preparation is done in their facility?
Home?

Handout #1- Assignment Sheet #1- Arrange in order production sequence for a breakfast meal.

If time permits: Each participant will arrange breakfast items of menu hes planned into the proper production sequence.
BREAKFAST COOKERY--PRODUCTION SEQUENCE

"Arrange in order the proper production sequence for this breakfast meal. Place a "1" in front of the first step, a "2" in front of the second, and so on.

1. Make coffee
2. Fry bacon--10 minutes
3. Prepare eggs--4 minutes
4. Pour juice
5. Make toast--2 minutes
6. Plate bacon, eggs, toast
7. Prepare hot cereal--30 minutes
COOKING BREAKFAST CEREALS

The job of making hot breakfast cereals follows a pattern no matter what brand of cereal is prepared. Raw or partially cooked cereals are cooked in salted water until the water is absorbed, the starch is cooked and the cellulose is softened. Directions for cooking are printed on the package and include the ingredients, method of cooking and yield. The student, however, should be familiar with the three common methods of cooking no matter what package directions are indicated. The three procedures are as follows:

1. Raw cereal may be combined with all the cold water indicated in the recipe, slowly brought to a boil while stirring, and simmered until done.

2. Raw cereal may be mixed with part of the cold water and set aside. The balance of the water is brought to a boil, at which point the cereal mixture is stirred into it and simmered until done.

3. All of the cold water is brought to a rapid boil; the dry cereal is then slowly stirred into it and simmered until done.

Although methods (1) and (2) avoid lumpiness, method (3) seems to be the one most widely preferred by breakfast cooks. Some cereals are so-called “quick cooking,” meaning they have been partially cooked during processing. Those not indicated as quick cooking are preferred by some chefs because of the lighter, smoother texture and mellow flavor that results from long, slow simmering. Although cooking breakfast cereals is considered one of the easiest jobs in the kitchen, it has some hazards for beginner cooks. Five common faults and ways of correcting them are listed.

1. Lumpiness: When raw dry cereal is carelessly added to boiling water without proper stirring, those starch granules in immediate contact with the water form a viscous mass, trapping uncooked particles inside. These uncooked particles (lumps) remain, no matter how long the cooking continues. The remedy is to disperse the starch granules before lumps form. The cook should:

   a. Hold a wire whip at the middle of the pot below the surface of the water

   b. Stir the water with the whip, while very slowly pouring the cereal where the whip is agitating the water, and
(c) Continue to slowly add the cereal while stirring vigorously until all the cereal has been added.

(2) Stickiness: This is a major fault with oatmeal. It is usually caused by excessive stirring after the cereal has been thickened. When cereal is first added to water, it settles to the bottom, and a layer of water remains on top. During this brief period, as the cereal is swelling and absorbing water, it should be stirred until the water and cereal form into a thick homogeneous mass. At that point, stirring should be drastically reduced. The cereal should be cooked over a low flame until done, stirring only occasionally to make sure there is no bottom sticking. In some kitchens, after the cereal is thickened, it is transferred to the steam table for slow cooking and a minimum of stirring.

(3) Excessive thickness: After the cereal has been completely cooked and has been standing in the steam table for an hour or more, the starch sometimes continues to swell and cause undue thickness, just as certain sauces or soups standing in the steam table become thicker in time. If this occurs, the cereal should be carefully thinned with a small addition of boiling water stirred into the cereal, using only as much water as necessary to restore the cereal to its original consistency.

(4) Skin: If hot cereal remains in the steam table for long periods without being served or stirred, it may develop a thick skin on top. To avoid it, keep the steam table pot or inset tightly covered except when serving.

(5) Burnt flavor: Scorching will occur if the thickened cereal is kept over a flame which is too high. If a steam-jacketed kettle is used for cooking, reduce the heat drastically as soon as the cereal has been added to the boiling water. Check the bottom of the pot or kettle with a spoon or paddle to make sure cereal is not sticking during cooking. If cereal is sticking, but is not scorched, empty it into a clean pot without scraping bottom.

Ratio of Cereal to Water

Many breakfast cooks prepare cereal without reference to any recipe. The general guidelines which they follow remain constant no matter what brand of cereal is used. Oatmeal normally requires twice as much water as oats by volume, not weight. Thus if the cook fills a gallon measure with rolled oats, he will need two gallons of water to make oatmeal. For making cracked wheat cereals such as Wheaten, a gallon of the cereal will require four gallons of water. For making fine granular cereals such as farina or cornmeal, a gallon of the cereal will require five to six gallons of water. Each cereal requires a tablespoon of salt per gallon of water.

### SCORECARD FOR COOKED CEREALS

Evaluate against characteristics of a high quality product using a 5-point scale—5=most desirable, 1=least desirable.

<table>
<thead>
<tr>
<th>Product</th>
<th>Appearance</th>
<th>Texture</th>
<th>Tenderness</th>
<th>Flavor</th>
<th>General Acceptability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooked Cereals</td>
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<tr>
<td>Cooked Rice</td>
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</tbody>
</table>

**Characteristics of a High Quality Product:**

- **Cooked Cereals:**
  - Appearance: Distinct particles, granules or flakes
  - Consistency: Thick; somewhat viscous (without gumminess)
  - Flavor: Bland (cooked starch); typical for grain (wheat, corn, oats); well-rounded (no raw starch)
  - Tenderness: Not evaluated for this product
  - Mouth Feel: Particles remain discreet; soft

- **Cooked Rice:**
  - Appearance: Grains intact; white, translucent
  - Texture: Grains firm, but tender; fluffy
  - Flavor: Bland
This is what I learned at this workshop:


This is how I'll use what I learned on my job:


Next Time, I hope you will:


137 (over for more space)
KANSAS DEPARTMENT OF VOCATIONAL EDUCATION

FOOD SERVICE EMPLOYEE SHORT COURSE

Module II: Meats and More

I. Overall Goal:

Using the information learned in this short course, each participant should be able to select, prepare, and serve protein foods (meats, poultry, fish, meat salads, variety meats) in quantity by approved methods to conserve their nutritional value, flavor, and appearance.

II. Plan of Procedure:

A. Participants: Food service employees from schools, nursing homes, hospitals and other institutions will be invited to attend.

B. Prerequisites: Some experience in quantity food production is desirable.

C. Learning Strategy: Presentation of the course will be by lecture, demonstrations, actual "hands-on" class activities, and audio-visual materials. Handouts will be distributed at most sessions.

D. This module on Meats and More will consist of the following topics:

   Class 1: Meats--Their Composition, Nutritional Value, Selection, and Preservation
   Class 2: Meats--Principles of Moist Heat Cookery
   Class 3: Meats--Principles of Dry Heat Cookery
   Class 4: Principles of Poultry Cookery
   Class 5: Principles of Fish Cookery
   Class 6: Preparation of Main Dish Salads and Variety Meats

III. Behavior Objectives:

At the completion of this short course, each participant should be able to:

Class 1: Meats--Composition, Value, Selection and Preservation

1. Write a definition for meat and define key words--gelatin, shrinkage, braise, stew, etc.
2. List 3 characteristics of good quality to consider in purchasing beef and in purchasing pork.
3. Describe 4 factors that affect the texture and tenderness of meats.
4. Tabulate 4 objectives for cooking meats.
5. List appropriate methods of cookery for various cuts of meat.
6. Provide guidelines for the correct procedures for storing and thawing meats.
7. Describe meat cookery methods that are energy efficient.

Class 2: Meats--Principles of Moist Heat Cookery

1. Explain and contrast the dry heat method of meat cookery and the moist heat method of meat cookery.
2. List 6 basic methods of cooking meat and identify as moist or dry heat method.
3. List 3 ways of tenderizing meats in addition to the use of moist heat.
4. Discuss the methods for steaming, braising, stewing, simmering meats.
5. Test the meat for doneness.

Developed cooperatively by Occupational Home Economics, Kansas Department of Vocational Education, Wichita Area Vocational-Technical School and members of the Kansas Dietetic Association.

An equal employment/educational institution.
Class 3: Meat—Principles of Dry Heat Cookery
1. Explain the acceptable procedure for roasting meats including correct roasting temperatures and degree of doneness.
2. Discuss the methods for roasting, broiling, frying, panfrying (saute) meats.
3. Read and use meat timetables.
4. Slice and portion a beef roast to yield portions planned.
5. Select suitable grades and cuts of meat for dry heat cookery.
6. Use a meat thermometer correctly.
7. List reasons for meat shrinkage and how shrinkage may be prevented.

Class 4: Principles of Poultry Cookery
1. Define the term "grading" of poultry
2. Quality refers to the degree of excellence of poultry. Itemize 3 factors for determining such quality in poultry.
3. Name the basic principle that must be followed in the cookery of poultry and list 2 reasons for this principle.
4. Demonstrate the proper methods for thawing a frozen chicken.
5. Name 6 ways in which poultry may be cooked and describe each method as moist or dry heat.
6. Explain the acceptable procedure for roasting temperature and degree of doneness for poultry.

Class 5: Principles of Fish Cookery
1. Given a list of fish cookery methods, pick out the 2 most often used and tell how doneness is determined in these methods.
2. Describe how to poach fish fillets.
3. List 3 general principles of fish cookery.
4. Evaluate prepared fish.
5. Demonstrate the ability to prepare, garnish and attractively serve fish.

Class 6: Preparation of Meat Salads and Variety Meats
1. Have a better knowledge of the nutritional contribution of variety meats in the diet.
2. Explain why low temperature in liver cookery are important.
3. Suggest 3 ways to prepare, garnish, and attractively serve liver for better acceptance by the public.
4. Demonstrate the ability to prepare and creatively display main dish and meal-in-one salads.
5. Demonstrate safe and sanitary procedures in the preparation and holding of main dish salads.
6. Have knowledge of the nutritional contribution of various main dish and meal-in-one salads.
7. Have knowledge of the wide variety of ingredients which may be used in main dish salads.

IV. Evaluation
Each participant will use scorecards at each session to evaluate products produced. These will be reviewed with the instructor. Leading questions based on information presented in the session will be asked at this time to assess knowledge gained and clarify points presented.

V. Certificate of Course Completion
Each participant will be issued a certificate of satisfactory completion if all six classes were attended.

VI. Expected Outcome
Participants will become more aware of their valuable and vital role on the health care team by providing nutritious and appealing meals to the residents (patients) in their facilities as an aid to their well-being.
DEFINITIONS OF TERMS

1. Bake - to cook by dry heat (usually in an oven) on heated metals. (Baking means the same as roasting when applied to meat cookery.)

2. Baste - to moisten meat or other food while cooking in order to add flavor and to prevent drying of the surface. (The liquid is usually fat, drippings, water, or water and fat.)

3. Beat - to make a mixture smooth or introduce air by using a brisk regular motion to lift the ingredients over and over.

4. Blanch - to precook or pretreat in boiling water or steam or possibly in fat. Blanching is used to:
   a) aid in removing skins from fruits and nuts
   b) precook in deep fat without browning as a first step in preparing french fried potatoes.

5. Blend - to thoroughly mix two or more ingredients. (This is often done with a mixer at low speed.)

6. Boil - to cook in a liquid (water or mostly water) in which the bubbles are breaking on the surface and steam is being given off.

7. Braise - to brown meat or vegetables in a small amount of fat, add a small amount of liquid, cover tightly and cook slowly. (The liquid may be water, milk, cream, or meat stock.)

8. Bread - to coat with bread crumbs or cracker meal, or to coat with crumbs, then with lightly diluted egg, and again with crumbs.

9. Broil - to cook by direct heat; grill.

10. Caramelize - to heat sugar or food containing sugar until a brown color and characteristic flavor develop.

11. Chop - to cut food into fairly fine pieces with a knife or other sharp tool.

12. Cream - to mix one or more foods, such as fat and sugar, to incorporate air.

13. Dredge - to sprinkle, dust, or coat with flour or other fine substance.

14. Fold In - to combine ingredients, while retaining incorporated air, by cutting carefully down through the mixture with an implement, sliding the implement across the bottom of the mixing bowl, and turning the mixture over in this manner several times.

15. Fricassee - to cook by braising. (This term is usually applied to fowl, rabbit, or veal which is cut into pieces.)
16. **Fry** - to cook in hot fat. (Cooking in a small amount of fat is called pan-frying; cooking in a deep layer of fat is called deep-fat frying.)

17. **Grill** - to fry on a griddle; saute or toast.


19. **Knead** - to work a dough with a pressing motion by folding and stretching to develop gluten.

20. **Lard** - to insert strips of fat into or on the top of uncooked lean meat, poultry or fish to give flavor and prevent dryness.

21. **Marinate** - to treat with a marinade (an oil-acid mixture) which is usually like a salad dressing. (The process imparts flavor, and when used with meats, some tenderizing action takes place.)

22. **Melt** - to liquefy by the application of heat.

23. **Mince** - to cut or chop food into very small pieces.

24. **Mix** - to combine ingredients in any way that effects even distribution.

25. **Mold** - to form dough or other mixtures into loaves or other desired shapes or to place a gelatin mixture into a mold to gel.

26. **Pan-Broil** - to cook uncovered on a hot surface (usually a frying pan); the fat is poured off as it accumulates.

27. **Parboil** - to boil until partially cooked. (The cooking is completed by another method.)

28. **Pare** - to cut off the outside covering (usually with a knife).

29. **Peel** - to remove or strip off the outside covering (usually with a knife).

30. **Puree** - to finely strain fruits or vegetables.

31. **Roast** - the same as to bake. (The term is mostly applied to meats.)

32. **Roux** - to mix an equal portion of fat and flour.

33. **Sanitize** - to destroy microorganisms. (For culinary purposes, this is most often done at a temperature of 180°F or by chemicals.)

34. **Saute** - to cook in a small amount of fat. (This process is also called pan-frying.)

35. **Scald** - to heat a liquid to just below the boiling point.

36. **Shred** - to tear or cut into small, long narrow strips (similar to sliver).

37. **Simmer** - to cook in a liquid just below the boiling point, i.e., 185°F to 210°F. (The bubbles form slowly and break below the surface.)
38. **Sliver** - to cut or shred into small pieces.

39. **Steam** - to cook in steam with or without pressure.

40. **Stew** - to simmer in a large quantity of liquid. (When applied to meat, a simmering temperature is maintained.)

41. **Stir** - to mix food materials with a circular motion in order to blend or to secure a uniform consistency.

42. **Stock** - the liquid in which meat, poultry, fish, or vegetables have been cooked.

43. **Toast** - to brown by means of direct heat.

44. **Whip** - to beat rapidly to produce expansion due to incorporation of air (applied to cream, eggs, gelatin mixture).

45. **Marbling** - fat inside of meat

46. **Covering** - fat outside of meat

47. **Aging** - natural tenderizing and flavoring of meat.

48. **Shrinkage** - loss of meat and weight caused by dehydration of the food product during cooking.

49. **Connective tissue** - fibers which hold the meat tissue together.

50. **Gelatin** - animal protein taken from the collagen connective tissue.

51. **Protein** - the "building blocks" needed by the body to replace worn-out cells.
Lesson 1: Meats: Their Composition, Nutritional Value, Selection and Preservation

Module II: Meats and More

I. Instructor preparation for class activities

A. Prepare copies of student handbooks

B. Obtain sufficient copies of "Basics About Beef"—available free from Kansas Beef Council, 2044 Filmore, Topeka, Kansas 66604, phone (913)-232-935

C. Have on hand copies of Food for Fifty for students to purchase if needed

D. Prepare color-coded name tags dividing class into 4 groups of 3-4 participants each

E. Duplicate sufficient copies of handouts
   1. Goals and Behavioral Objectives
   2. Definitions of Terms
   3. "Basics About Beef"—see above
   4. Pork Chart
   5. Points to Remember When Cooking Beef
   6. Cooking and Storing Meat and Poultry

F. Order sufficient copies of "Cooking Meat in Quantity", National Livestock and Meat Board, Department of Home Economics, 444 North Michigan Avenue, Chicago, Illinois 60611

II. References which will provide more information on the subject of this lesson


## Lesson 1: Meats: Their Composition, Nutritional Value, Selection and Preservation

### Lesson Content

I. Presentation of name tags and get-acquainted activity
   - A. Complete enrollment procedures
   - B. Provide students with folder of materials

II. Orientation to the facility
   - A. Building rules
   - B. Bathroom location

III. Orientation to the course—see handouts
   - A. Purpose of short course
   - B. Meeting place and times
   - C. Dress and conduct codes and handwashing procedure
   - D. Basic organization of course
   - E. Goals and objectives

IV. Topic of Lesson 1: Meats: Their Composition, Nutritional Value, Selection and Preservation
   - A. Meats
     1. Definition of meat
     2. Glossary of terms
   - B. Composition of meat
     1. Nutritional value to diet
     2. Effects of cooking on food value

### Class Activity and Evaluation

- Color-coded name tags for dividing class into 4 groups of 3-4 participants each for future team activities
- Get-acquainted activity: Each one introduces self and place of employment and tells his favorite protein dish. Chairs are arranged in a circle
- Tour kitchen
- Hand out copies of student handbook
- Class discussion regarding sanitation, kitchen and work areas and rules for equipment usage
- Handout 1: Goals and Objectives
- Handout 2: Definitions of Terms
- Handout 3: "Basics About Beef"
### LESSON CONTENT

**C. Factors affecting texture and tenderness**
1. Structure cell walls--cut of meat, age, development
2. Connective tissue--collagen and elastin
3. Nutrition of animal
4. Ripening process

**D. Selection of meat**
1. Economy
2. Menu planning
3. Cooking time
4. Intended use

**E. Guides to meat buying**
1. Federal inspection--round stamp guarantees wholesomeness
2. Grading--shield-shaped stamp indicates grade or quality
3. Appearance

**F. Characteristics of good quality**
1. Beef--bright, cherry-red color; good marbling of fat; cut surface velvety; firm grain; red, porous bones
2. Pork--pinkish-white color; well-marbled with fat; firm flesh; bones with slight tinge of red

**G. Guides to meat care**
1. Preservation and storage
2. Thawing
3. During preparation
4. During serving period

**H. Basic principles of meat cookery**
1. Protein coagulation
2. Tenderness of meat cut
3. Temperature control
   a. Shrinkage
   b. Cooking temperatures
   c. Use of meat thermometer
   d. Factors affecting cooking time

### CLASS ACTIVITY AND EVALUATION

- See pages 3-7--"Basics About Beef"
- See page 3--"Basics About Beef"
- See "Beef Cuts", pages 8 and 9--"Basics About Beef"
- See Handout 4: Pork Chart
- See pages 3 and 4--"Basics About Beef"
- Demonstrate and discuss proper and improper techniques of thawing ground beef in the refrigerator, at room temperature, in warm water, in cold water and in the microwave
- See page 253--"Food for Fifty"
- Handout 5: Points to Remember When Cooking Meat in Quantity--National Livestock and Meat Board
See time tables for meat cookery, pages 255-259--"Food for Fifty"
- Show several different kinds of meat thermometers which are suitable for meat cookery
FOOD SERVICE EMPLOYEE SHORT COURSE

Module II: Meats and More

LESSON CONTENT

I. Moist heat—less tender cuts of meat
   1. Steaming—page 264
   2. Braising—page 263
   3. Simmering—page 264
   4. Stewing—page 265
   Food for Fifty

J. Dry heat—tender cuts of meat
   1. Roasting—page 253
   2. Broiling—page 260
   3. Panfrying (sautéing)—page 262
   4. Frying—page 262
   5. Stir frying
   Food for Fifty

V. Viewing of film or filmstrip. Discussion

CLASS ACTIVITY AND EVALUATION

See pages 252-265: Food for Fifty
See pages 10 and 11: "Basics About Beef"
Handout 6: Cooking and Storing Meat and Poultry
See pages 4 and 5: "Basics About Beef"

Suggested films:
Film: FS-131—"Roasting", 10 minutes, color; National Educational Media, Inc., Encino, California 91436 (Basic method in step-by-step procedure)
or
Filmstrip: S-820—"Roasting Meats and Poultry"; 82 frames, 8 minutes, color; National Educational Media, Inc. (Basic methods in step-by-step procedure. Includes proper use of racks, pans and oven. Tips on quantity roasting, basting, time, temperature and use of thermometer)
or
Filmstrip: "How to Cook Meat"; National Livestock and Meat Board, Department of Home Economics, Chicago, Illinois 60009

VI. Assignment for next lesson:
   Bring your favorite recipe for meat using moist heat cookery

VII. Introduce next lesson and prepare market order
NUTRITION

Beef supplies complete, high quality proteins. Proteins are made up of amino acids. We need 22 amino acids, but only eight are essential, meaning they must leave from food. The body makes the remaining nonessential amino acids.

Proteins which contain all of the eight essential amino acids in proportions most useful to the body are called complete or high quality proteins. Plant proteins, when eaten singly, do not contain all of the essential amino acids in sufficient quantity and therefore are incomplete. Animal proteins such as those in beef help to build, maintain, and repair body tissues, form body hormones and enzymes and increase resistance to infection and disease.

One of beef’s most important nutrients is iron. Iron helps red blood cells carry oxygen to and away from the other body cells. The iron in meat, called heme iron, is easily utilized by the body. It also helps the body use the non-heme iron present in other foods such as legumes and grain products.

One 3-oz. (85 g) cooked serving of ground beef will supply 2.6 milligrams of iron or 15% of the amount recommended for most people.

---

ZINC

FILL IN THE CHART

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B-VITAMINS

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This book is all about beef! You can purchase it in the store until you serve it. The information is designed to help you make the best beef purchase and to show you how to prepare beef to enhance its tenderness and flavor.

But why should you choose beef in the first place? The most important reason is the basic reason we eat: to obtain the nutrients in food needed by the body.
These are the factors to consider as you purchase beef:

- Wholesomeness
- Quality
- Appearance
- Refrigerator and freezer storage space
- Cost per serving and number to serve
- Preparation method and time needed for preparation

All meat sold must, under law, pass inspection for wholesomeness.

**Meat Inspection:**

The purpose of inspection is to protect the consumer by guaranteeing that all meat sold is from healthy animals which were slaughtered and processed under sanitary conditions. It guarantees that the meat is suitable for consumption.

If meat is to cross state lines, it must be federally inspected. If it is to be sold only in the state, it must meet state and city inspection regulations. Federal inspection is supervised by the United States Department of Agriculture (USDA).

Experienced veterinarians or specially trained, supervised inspectors inspect beef both before and after slaughter.

Beef which passes federal inspection for wholesomeness is stamped with a round, purple mark made with an edible vegetable dye. The number inside the mark is the official number assigned to the establishment where the animal was processed. (See illustration.) State-inspected beef will have a different, shaped inspection mark, depending on the state.

The inspection mark is placed only once on wholesale cuts, so you are likely to see it only on large cuts of beef.

Quality is a second factor to consider in buying beef. Quality refers to characteristics associated with the palatability of the lean (tenderness, juiciness and flavor). The names you see on beef indicate the quality of the meat. These names are either the USDA grade names or the meat packer and retailer brand names.

**USDA Beef Grading:**

USDA meat grading is a voluntary service. Firms pay a fee to USDA for performing this service for them. Graders are highly trained specialists employed by USDA.

A grade mark is a shield-shaped symbol with the letters USDA and the grade name (such as Choice).

When a beef or veal carcass is graded, the grade mark is applied to the carcass (or the parts of the carcass known as wholesale cuts) with an edible purple dye in a long, ribbon-like imprint. Prepackaged meats sometimes have grade shield stickers on the package.

The top three of the eight beef and veal grades are U.S. Prime, U.S. Choice and U.S. Good. These are usually sold in retail stores and come from young, well-fed animals usually less than two years old. Beef graded with the other five grades (U.S. Standard, U.S. Commercial, U.S. Utility, U.S. Cutter and U.S. Canner) is usually from more mature, less tender animals. This meat is used primarily in processed meats, sausages and canned meats. It is just as wholesome and nutritious as higher grades.

**Grades of Beef Sold in Retail Stores**

**Prime:** The top or highest grade of meat containing the greatest degree of marbling.* It is generally sold to finer restaurants and to select meat stores. It is always higher priced because it’s produced in very limited quantities.

**Choice:** The grade generally sold at retail stores. It’s preferred because it contains sufficient marbling for taste and tenderness but is less costly than U.S. Prime.

**Good:** Lower-priced grade of meat with less marbling than U.S. Choice. It’s good eating and as nutritious as the other grades, though not as tender.

*Marbling is the term for the small flecks of fat that are interspersed with the lean (muscle). It contributes to tenderness, juiciness and flavor.

Other Beef Grading:

Because beef grading is a voluntary program, not all beef is graded by USDA. Many packing plants, retail chain stores and independent retailers, relying upon many years of experience in satisfying their customers, do their own grading. Their own grade names are usually referred to as brand names. Therefore you may find varying names stamped on beef.

Remember, meat inspection is mandatory. The inspection mark means the meat is wholesome and safe to eat.

Meat grading is voluntary. The grade mark is a standard of quality.

Complete the following statements. Then find the answer in the jumble below and pencil in the shapes which contain the letters to each answer. (Answers appear more than once in the jumble.)

1. The grade shield on beef indicates the ____ of the product.
2. Wholesomeness in beef is indicated by the ____ mark.
3. The grade of beef sold in most stores is ____.

What is the symbol which remains after you have penciled in all the answers?

[Diagram of inspection marks]
A fourth factor in buying beef is the available storage space in your refrigerator or freezer. (Always plan to make beef the last purchase before returning home.)

Most fresh beef is prepackaged and should be stored wrapped, as purchased. Fresh beef which is not prepackaged should be unwrapped and loosely rewrapped in plastic or foil before it’s placed in the refrigerator. It can be stored for two to four days after you purchase it. Store at refrigerator temperatures (between 36° and 40° F. or 2° and 4° C). The special meat compartment in some refrigerators is designed to maintain ideal temperature.

(1) Freeze beef as soon as possible after purchase while fresh and in top condition.

(2) Select proper freezer wrapping materials such as:
- specially coated freezer paper
- aluminum foil
- heavy-duty transparent polyethylene
- heavy-duty plastic bags

The wrap must seal out air and lock in moisture. If air penetrates the package, moisture is drawn from the surface of the meat causing a harmless condition known as “freezer burn” which affects the palatability of beef when cooked. Plastic sandwich bags and waxed paper are unsuitable wrapping materials for freezing.

Prepackaged meat such as you buy at self-service meat counters can be frozen without rewrapping and stored in the freezer one to two weeks. For longer freezer storage the original package should be rewrapped or overwrapped with special freezer wrap.

(3) Prepare beef for freezing before wrapping. To conserve freezer space trim excess fat and remove bones when practical. Shape ground beef into patties; bone and cut into pieces those cuts of meat you plan to use for stew or similar dishes. Do not season as this shortens freezer life. Freeze beef cubes, patties, meatballs and meat loaves unwrapped on a tray so they won’t stick together. Wrap for storage after they’re frozen.

(4) Wrap tightly, pressing out as much air as possible. (See illustrations showing how to wrap.)

(5) Label properly. Indicate name of cut, approximate number of servings and/or weight and date of freezing.

(6) Freeze at once at 0° F. (-18° C) or lower. Do not stack unfrozen packages or freeze too many packages at one time. This slows down the freezing, which may lower quality.

Maintain freezer temperature at 0° F. (-18° C) or lower. Use a thermometer to check temperature.

(7) Use chart below to determine maximum storage times.

### Maximum Storage Time Recommendations for Fresh, Processed and Cooked Beef

<table>
<thead>
<tr>
<th>Product</th>
<th>Refrigerator (at 36° to 40° F. or 2° to 4° C)</th>
<th>Freezer (at 0° F. or -18° C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh Beef</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roasts, steaks</td>
<td>2 to 4 days</td>
<td>6 to 12 months</td>
</tr>
<tr>
<td>Beef for stew</td>
<td>2 days</td>
<td>6 to 8 months</td>
</tr>
<tr>
<td>Ground beef</td>
<td>1 to 2 days</td>
<td>3 to 4 months</td>
</tr>
<tr>
<td>Beef variety meats</td>
<td>1 to 2 days</td>
<td>3 to 4 months</td>
</tr>
<tr>
<td>Fresh Veal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roasts, chops, cutlets</td>
<td>2 to 4 days</td>
<td>6 to 9 months</td>
</tr>
<tr>
<td>Ground veal</td>
<td>1 to 2 days</td>
<td>3 to 4 months</td>
</tr>
<tr>
<td>Cured and/or Smoked and Ready-to-Serve Beef Products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corned beef</td>
<td>1 week</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Frankfurters</td>
<td>4 to 5 days</td>
<td>1 month</td>
</tr>
<tr>
<td>Luncheon meat</td>
<td>1 week</td>
<td>Not recommended</td>
</tr>
<tr>
<td>Sausage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoked</td>
<td>3 to 7 days</td>
<td></td>
</tr>
<tr>
<td>Dry and semi-dry (unsliced)</td>
<td>2 to 3 weeks</td>
<td></td>
</tr>
<tr>
<td>Cooked Beef Products</td>
<td>4 to 5 days</td>
<td>2 to 3 months</td>
</tr>
</tbody>
</table>
Freezing Cooked Beef:
Many cooks find it convenient to prepare two batches of a recipe and freeze one for later use or to prepare a meal ahead of time and freeze it.

(1) Prepare for immediate serving, but slightly underdone, to allow it to finish cooking when reheated.
(2) Cool in the refrigerator for approximately two hours.
(3) Package when cool following steps 4-7 on page 4.

Freezing Cured, Smoked or Ready-to-Serve Beef Products:
These products do not keep their high quality long in the freezer because seasonings in the products speed the development of rancidity and cause texture changes during frozen storage. For best quality, limit frozen storage of corned beef and bologna to two weeks and frankfurters to one month.

Freezing Defrosted Beef:
Refreezing of completely defrosted beef is not usually recommended except in emergencies because the quality of the beef may deteriorate between the time of thawing and refreezing. Partially defrosted beef may be refrozen.

Frozen beef may be defrosted before or during cooking. Defrost beef in the original wrapping in the refrigerator or in an appropriate container in a microwave oven. Defrosting meat at room temperature is not recommended. The length of time for defrosting meat in the refrigerator at 36° to 40° F. (2° to 4° C) is:

- Large Roast 4-7 hours (per pound)
- Small Roast 3-5 hours (per pound)
- 1-inch Steak 12-14 hours (total)

Seal ends with strips of freezer tape. Label tape with name of cut, number of servings and date of freezing.

UNSCRAMBLE THE STATEMENTS
Unscramble these to make each a factual statement about beef storage

YSAWL APNL OT EMKA EBFE HET TLSA RHESAUPC FREBEO GERTRUNIN MEHO

SEFHR TAME ANC EB DOREST NI ETH GRAFTERIERRO ORMF OTW OT ROUF SADY

ZERGEFIN APWR UTSM LEAS OTU RAI DAN COKL NI TREMSUOI

TEIDSROGNF TEMA TA ORMO PATTERNREEU TNO CODEDMERNEM

BEST COPY
A fifth consideration in buying beef is the cost per serving and number of people to serve. To be a smart shopper, plan around cost per serving rather than cost per pound. The amount of bone and fat in a cut determines the number of 3-oz. (85 g) servings of cooked beef a pound will provide. Some boneless cuts, although priced higher than bone-in cuts, may be better buys because they have little waste. Cooking method, internal temperature and degree of doneness are also factors.

Chart A shows how many 3-oz. servings per pound you can expect from each specific cut of beef. This chart will also help you decide how much beef to buy for the number of people you plan to serve. To determine the approximate cost per serving, simply divide the price per pound by the number of servings per pound the cut will provide. Chart B shows a few examples of cost per serving based on this formula. Here’s an example of how to figure cost per serving.

Suppose you decide to prepare a pot-roast. The recipe recommends an arm pot-roast. To figure cost per serving:

1. Locate arm pot-roast in Chart A.

2. Write down the servings per pound an arm pot-roast will provide indicated on Chart A.

3. Write down the price per pound from the package label or a newspaper ad.

4. Divide the price per pound by the number of servings per pound an arm pot-roast will provide (from no. 2 above).

5. Write down the cost per serving.

Select another cut suitable for your recipe and figure cost per serving using the steps described above. Which of the two cuts is a better buy?

### Chart A: Servings per Pound Chart

<table>
<thead>
<tr>
<th>Roasts</th>
<th>Servings per Pound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rib Eye Roast</td>
<td>3</td>
</tr>
<tr>
<td>Rib Roast</td>
<td>2</td>
</tr>
<tr>
<td>Rump Roast</td>
<td>2</td>
</tr>
<tr>
<td>Rump Roast, Boneless</td>
<td>3</td>
</tr>
<tr>
<td>Tip Roast</td>
<td>3</td>
</tr>
<tr>
<td>Top Round</td>
<td>3</td>
</tr>
</tbody>
</table>

**Braising Steaks**

- Cubed Steak: 4
- Flank Steak: 4
- Porterhouse Steak: 2
- Sirloin Steak: 21/2
- Rib Eye Steak: 3
- Rib Steak: 2
- Rib Steak, Boneless: 21/2
- T-Bone: 2
- Tenderloin (Filet, Mignon) Steak: 3
- Top Loin Steak: 2
- Top Loin Steak, Boneless: 21/2

**Other Cuts**

- Beef for Stew: 4
- Britsh: 3
- Ground Beef: 4
- Short Rib: 2
- Beef Variety Meats (liver, heart, tongue, kidney): 4

### Chart B: Cost Per Serving Chart

- **Roasts**
  - Rib Eye Roast: $1.86/lb
  - Rib Roast: $1.86/lb
  - Rump Roast: $1.86/lb
  - Rump Roast, Boneless: $1.86/lb
  - Tip Roast: $1.86/lb
  - Top Round: $1.86/lb

- **Braising Steaks**
  - Cubed Steak: $1.86/lb
  - Flank Steak: $1.86/lb
  - Porterhouse Steak: $1.86/lb
  - Sirloin Steak: $1.86/lb
  - Rib Eye Steak: $1.86/lb
  - Rib Steak: $1.86/lb
  - Rib Steak, Boneless: $1.86/lb
  - T-Bone: $1.86/lb
  - Tenderloin (Filet, Mignon) Steak: $1.86/lb
  - Top Loin Steak: $1.86/lb
  - Top Loin Steak, Boneless: $1.86/lb

- **Other Cuts**
  - Beef for Stew: $1.86/lb
  - Britsh: $1.86/lb
  - Ground Beef: $1.86/lb
  - Short Rib: $1.86/lb
  - Beef Variety Meats (liver, heart, tongue, kidney): $1.86/lb
PREPARATION METHOD AND TIME

UNIFORM RETAIL MEAT LABELING

If the store at which you shop does not use the Uniform Retail Meat Identity Standards (URMIS) to label its meat, you can use the same method used in Illinois to quickly determine which section of the animal a cut is from. Break out labels are based on the shape of the bone in each cut and the bone provides the name of the muscle and its cluster.

The seven basic groups shown in this diagram are used. The only ones you need to know are the first three. A square with the word rib indicates a rib cut. A square with the word rib and the word short rib indicates a short rib cut. A heart shape indicates a strip cut. If you are buying a large number of cuts, then you can reference the diagram to determine where each cut is located.
One of the objectives of cooking meat is to develop tenderness. Any cut can be made tender, juicy and flavorful when cooked by the appropriate method. Tender cuts are best cooked by dry heat methods. Less tender cuts require moist heat methods. The longer cooking time at low temperatures with moisture helps soften some of the connective tissue in less tender cuts.

**DRY HEAT METHODS FOR TENDER CUTS**

Use instead of oven broiling for small, tender beef cuts, 1 inch thick or less.

1. Place beef in heavy frying-pan.
2. Do not add fat or water. Do not cover. Covering creates moisture which braises the beef (a moist heat method).
3. Cook slowly, turning occasionally.
4. Pour off fat as it accumulates.
5. Brown meat on both sides.
6. Season and serve at once.

Rotissene cooking is a form of roasting. Use large, symmetrical cuts.

1. Insert rotisserie rod, lengthwise, through center of roast; fasten beef securely.
2. Place a drip pan under the turning beef to prevent flareups. Arrange coals around the pan.
3. Insert thermometer, as in roasting. Be sure bulb does not touch the rotisserie rod.

**VARIATIONS—DRY HEAT METHODS**

Stir-frying is a form of panfrying used in Oriental cookery. A wok, large frying-pan or electric frypan can be used.

1. Cut ingredients to uniform size, shape and thickness before beginning to cook. Beef should be sliced thin, across the grain.
2. Heat oil in pan.
3. Place one food at a time in the pan.
4. Stir continuously until cooked. Push cooked pieces up the wide sides of the wok or remove from the pan.
5. Repeat until all foods are cooked.
6. Combine all foods in pan. Add sauce, if desired, and cook until thickened. Serve at once.
Deep-fat frying is another form of frying.

1. Cut or shape beef into uniform pieces. Coat with batter, eggs and crumbs or flour, if desired.

2. Use deep pan (such as a kettle, electric deep-fat fryer or fondue pot) and when necessary a wire frying basket.

3. Heat fat to frying temperature. Heat enough fat to cover the beef pieces. Size of the pieces and whether the beef is cooked or uncooked determine the suitable temperature (between 300° and 360° F. or 150° and 175° C).

4. Place beef in frying basket. Lower beef a few pieces at a time into the hot fat.

5. Fry until browned and cooked through.

6. When done, remove beef from fat and place on absorbent towels.

(1) Dredge beef in seasoned flour, if desired.

(2) Brown the cut on all sides in a heavy utensil in its own fat or drippings, when desired.

(3) Cover with liquid, cover utensil, cook just below boiling point until tender (Boiling will toughen the meat).

(4) Add vegetables (whole or cut in large pieces) just long enough before serving to be cooked. When done, thicken pan juices, if desired. If the beef is to be served cold (e.g., corned beef), refrigerate it in the stock in which it was cooked.

VARIATIONS—MOIST HEAT METHODS

A slow cooker gently simmers the foods in a liquid at low temperatures over a long period of time (4 to 12 hours). It is most suitable for less expensive, less tender beef cuts. Consult the instruction book that accompanies the appliance.

COOKING FROZEN BEEF

Frozen cuts cooked by moist heat methods usually need less additional cooking time.

Dry heat methods can be used to cook frozen beef cuts if an increased cooking time is allowed. Allow 1 1/2 to 1 1/2 times the cooking time recommended for an unfrozen roast. Allow 1 1/2 to 2 times recommended to broil an unfrozen steak. Dry to be floured before broiling. Coated with eggs and crumbles, dipped in a better need to be partially defrosted so that the coating will stick.

A slow cooker gently simmers the foods in a liquid at low temperatures over a long period of time (4 to 12 hours). It is most suitable for less expensive, less tender beef cuts. Consult the instruction book that accompanies the pressure pan to avoid overcooking.
For cooking in a conventional oven

**Primal Cut**

<table>
<thead>
<tr>
<th>Chuck Blade Roast</th>
<th>Chuck Eye and Shoulder Roasts</th>
<th>Rib Eye Roast</th>
<th>Rib Steak</th>
<th>Short Ribs</th>
<th>Sirloin Steak</th>
<th>Tenderloin Steak</th>
<th>Tongue</th>
<th>Whole Round Steak</th>
<th>Other Cubes</th>
<th>Round Shank</th>
<th>Flank Steak</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Retail Cut</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4 in.</td>
<td></td>
<td></td>
<td>11/2 in.</td>
<td>11/2 in.</td>
<td>11/2 in.</td>
<td>1 in.</td>
<td>1 in.</td>
<td>1/2 to 1 inch</td>
<td>1/2 to 1 1/2 inches</td>
<td>1 to 1 1/2 lbs.</td>
<td>1/4 to 1 1/2 in.</td>
</tr>
<tr>
<td><strong>Approx. Weight</strong></td>
<td></td>
<td></td>
<td>1 1/4 to 1 1/2 in.</td>
<td>1 1/2 to 2 in.</td>
<td>1 to 1 1/2 in.</td>
<td>4 to 6 ozs.</td>
<td>4 to 12 ozs.</td>
<td>1 1/4 to 2 1/4 in.</td>
<td>1 1/2 to 2 1/2 in.</td>
<td>1 1/2 to 2 inches</td>
<td>1 to 1 1/2 in.</td>
</tr>
<tr>
<td><strong>Cooking Total</strong></td>
<td></td>
<td></td>
<td>20</td>
<td>25</td>
<td>35</td>
<td>18</td>
<td>15</td>
<td>20</td>
<td>15</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

*This timetable is based on broiling at a moderate temperature. Rare steaks are broiled to an Internal temperature of 140° F; medium, to 160° F; well-done, to 170° F.*

**Other Primal Cuts**

<table>
<thead>
<tr>
<th>Brisket Fresh or Corned Beef</th>
<th>Shank Shank Cross Cuts</th>
<th>Chuck, Short Plate, Flank Beef for Stew or Round</th>
<th>Average or Weight</th>
<th>Approx. Total Cooking Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Retail Cut</strong></td>
<td></td>
<td></td>
<td>Approx. Weight</td>
<td>Approx. Total Cooking Time</td>
</tr>
<tr>
<td>Fresh or Corned Beef</td>
<td>Shank Shank Cross Cuts</td>
<td>Chuck, Short Plate, Flank Beef for Stew or Round</td>
<td>4 to 8 pounds</td>
<td>40 to 50 min. per pound</td>
</tr>
<tr>
<td><strong>Approx. Weight</strong></td>
<td></td>
<td></td>
<td>4 to 10 pounds</td>
<td>2 1/2 to 3 hours</td>
</tr>
</tbody>
</table>

**Meat Temperature**

- Rare: 140° F.
- Medium: 160° F.
- Well-done: 170° F.

**Cooking Time**

- Rare: 20 to 25 minutes
- Medium: 25 to 30 minutes
- Well-done: 30 to 35 minutes

*Based on beef taken directly from the refrigerator.
*Ribs which measure 6 to 7 inches from chine bone to tip of rib.
*Roast at 350° F. oven temperature.
*Roast at 425° F. oven temperature. Because a tenderloin roast is a small piece of meat, it only needs a short cooking period. A higher oven temperature is recommended in order to develop sufficient browning during the short cooking time.
*Serve, carved in thin slices.
<table>
<thead>
<tr>
<th>TRUE</th>
<th>FALSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>O K</td>
<td>1 Less tender cuts require moist heat methods</td>
</tr>
<tr>
<td>A V</td>
<td>2 Dry heat helps dissolve connective tissue</td>
</tr>
<tr>
<td>E B</td>
<td>3 Use small or thin, tender cuts for panbroiling.</td>
</tr>
<tr>
<td>E S</td>
<td>4 Panfrying is best for tender beef cuts with low fat content, cuts made tender by pounding or cubing, or cuts coated with flour, meal or egg and crumbs</td>
</tr>
<tr>
<td>L T</td>
<td>5 When broiling, always turn meat using a sharp fork</td>
</tr>
<tr>
<td>O R</td>
<td>6 When roasting, always cook beef fat side up</td>
</tr>
<tr>
<td>O M</td>
<td>7 Bulb of meat thermometer should not touch bone or rest in fat</td>
</tr>
<tr>
<td>H J</td>
<td>8 Allow roasts to stand 15 to 20 minutes before carving.</td>
</tr>
<tr>
<td>E O</td>
<td>9 Keep the liquid boiling at all times when cooking in liquid</td>
</tr>
<tr>
<td>C T</td>
<td>10 The recommended time to roast a 4 to 6-pound whole tenderloin is two to three hours.</td>
</tr>
</tbody>
</table>
The most successful roasts for microwave cooking are tender cuts that are compact and uniform in shape. Boneless meats such as rib eye, top round, tip or eye rolled and tied are good choices for small and rib roasts. Roasts that are uneven in shape cook more unevenly.

Cook roasts on a rack and cover with wax paper. If a roast is irregular in shape and a smaller portion is cooking too quickly, cover this portion with foil to extend cooking. The amount of foil must be much smaller than the amount of meat exposed. (Caution: NEVER allow foil to come in contact with the wall of a microwave oven.)

As roasts prepared conventionally, a meat thermometer or sensory probe is the most accurate way to determine doneness. Special microwave meat thermometers must be used inside microwave ovens. A regular roast meat thermometer can be used to check the internal temperature after the meat has been removed from the oven.

Racks are most uniform in doneness when cooked at a low setting (approximately 200 watts), though this requires a longer cooking time. Some roasts are also acceptable when cooked at a medium setting (approximately 325 watts) but a high setting is not recommended.

It's necessary to cook less tender meat slowly to increase their tenderness. Therefore, it is more difficult to enhance tenderness by means of the rapid cooking of the microwave oven. To enhance tenderness, try one of the following:

- Cover beef with plastic wrap or place in cooking bag and extend cooking time. (Avoid overcooking.)
- Use one of the simmering pots designed for microwave ovens.
- Cook other foods such as rice or vegetables with the beef.
- Marinate the beef in a liquid containing a food acid such as vinegar or lemon juice before cooking.
- Pound or cut beef into thin strips.

To enhance appearance of beef cooked by microwave, try one of the following:
- Brush the surface with a dark liquid such as soy sauce, Worcestershire sauce or brown gravy sauce.
- Sprinkle the surface with a gravy or soup mix or seasoned salt.
- Brush surface with oil, then coat the outside with fine bread, cracker or other crumbs.
- Add a sauce or glaze. Those high in sugar will brown more readily.
- Pre-brown the beef in a frying pan before cooking or follow manufacturer's directions for use of browning dish.

To assure even cooking, turn meat and/or rotate the pan or dish ¼ or ½ turn at intervals during the cooking period.

Because only a minute or two in the microwave oven can result in overcooked or undercooked beef, it is important to know factors which can affect cooking time.

- Colder food takes longer to cook.
- Outside edges cook more quickly, as do flat, thin shapes.
- High moisture foods cook more slowly. Foods high in fat and sugar cook more quickly.
- More food requires longer cooking time.
- Large pieces of food continue to cook when removed from the oven (Slightly undercook foods and allow for standing time.)

Answers to Games and Activities

Page 1: Crossword Puzzle

Across
1. Pressure-cooking 5 minutes 11. brisket 12. fenced

Down

Page 2: Fill in the Chart

Protein—50%, Riboflavin—10%, Niacin—25%, Vitamin B₆—20%, Iron—15%, Zinc—25%

Page 3: Find the Answers

1. Quality
2. Inspection
3. Choice

Symbol: Grade Mark Shield

Page 5: Unscramble the Statements

1. Always plan to make beef the last purchase before returning home.
2. Fresh meat can be stored in the refrigerator from two to four days.
3. Freezing wrap must seal out air and lock in moisture.
4. Defrosting meat at room temperature is not recommended.

Page 13: Discover the Reason

True Numbers—1, 3, 4, 6, 7, 8
False Numbers—2, 5, 9, 10

Page 14: Complete the Diagram
Chuck, Rib, Short Loin, Sirloin, Round, Brisket and Fore Shank Plate, Flank
Proper carving makes meat seem more tender. You need a good, razor-sharp knife, a good cutting board and some knowledge of the structure of the meat to be carved.

Meat is made up of bundles of long muscle fibers held together with connective tissue. Fibers would be difficult or impossible to chew if they weren't made softer and shorter. Proper cooking softens the fibers and connective tissues. Proper carving shortens the fibers.

The direction in which the muscle fibers run is called the grain. The principle of meat carving is to cut across the grain. This is a simple principle, but carving itself is not always as simple. Some roasts are made up of more than one muscle, and the fibers in each of the different muscles may run in slightly different directions. This makes finding the grain more difficult. The illustration below shows what the grain looks like and the correct and incorrect methods of slicing.
THE PRICE OF BEEF

Supply and Demand
As with other items, the price of beef is determined by the law of supply and demand. When the supply of beef exceeds demand, the price cattle raisers get for beef is low and they lose money. They then must reduce the number of cows they’re raising because they can’t afford the costs of maintaining a large herd. Years later the result is a supply of beef lower than demand. Then prices go up and cattle raisers make a profit. They begin to expand their herds. This process is known as the “cattle cycle.” The complete cycle is usually 10 to 12 years.

Unlike other industries, beef production can’t react quickly to a change in consumer demand. (It takes about two to two-and-a-half years from the time a calf is conceived until it’s ready for the market.)

By-Products
The price of beef on the table is well below what it might otherwise be because of the monetary value of the things that come from cattle besides beef.

A 1,000 lb. steer doesn’t yield 1,000 lbs. of beef. On the average, that half-ton steer yields only about 432 lbs. of retail beef cuts sold in the store. This is less than half of the live animal’s weight. Very little of that other 568 lbs. which does not become retail beef is lost, however. The flowchart shows how it’s used.

432 lbs. Retail Cuts: Steaks, Roasts, Ground Beef

358 lbs.
Hide and hair
Bones, horns, hooves
Inedible glands and organs

183 lbs.
Fat
Bone
Waste

Some Examples of By-Products
The importance of the tremendous quantity of iron, zinc, B-vitamins and high-quality protein that beef contributes to the American diet is well known. And equally noteworthy and vital are the contributions that the beef industry makes to the quality of American life beyond the dinner table.

<table>
<thead>
<tr>
<th>From Hide and Hair</th>
<th>From Bones and Homs</th>
<th>From Glands and Internal Organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>All leather goods: shoes, luggage, wallets, automobile upholstery</td>
<td>Bone china, Carving set handles, Gelatin for: marshmallows, photographic film, Stearins for: chewing gum, candies</td>
<td>Medicines such as: hormones, insulin, ACTH, cortisone, Chemicals for: tires, to run cooler, Binders for: asphalt in roads, Fats for: soap, livestock feeds</td>
</tr>
<tr>
<td>Camel's hair for: artists' brushes (hair in cattle's ears)</td>
<td>Bone charcoal for: steel ball bearings, Special glue for: plywood and matches</td>
<td></td>
</tr>
<tr>
<td>Curled hair for: upholstery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drum heads</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Violin strings</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Beef is the end product of the cattle industry. Kansas is one of the top beef-producing states in the country. The cattle industry is our most important industry... bigger than wheat, bigger than the manufacture of aircraft, bigger than the petroleum industry, in fact, bigger than all other industries. Beef processing (packing plants) is the state's second largest industry. Together... the Kansas beef business is more than a two billion ($2,000,000,000.00) dollar industry.

Because it’s so big, the beef industry involves many different people. With a little thought, it’s easy to list many different occupations that are somehow connected with the beef business... rancher, farmer, feeder, veterinarian, banker, meat packer, trucker, retailer (grocery operator), restaurateur, government inspector, manufacturer, construction worker and many, many more. Beef is every bit as important to the economic well-being of the people of Kansas as it is to their health.

KANSAS BEEF COUNCIL
2044 Fillmore
Topeka, KS 66604
(813) 232-9358

Kansas Beef Council

Developed in Cooperation with State Beef Council Home Economists

Published by BEEF INDUSTRY COUNCIL / National Live Stock and Meat Board
444 North Michigan Avenue / Chicago, Illinois 60611

1979 National Live Stock and Meat Board
WHOLESALE CUTS OF PORK AND THEIR BONE STRUCTURE

RETAIL CUTS OF PORK — WHERE THEY COME FROM AND HOW TO COOK THEM

APPROXIMATE YIELDS

<table>
<thead>
<tr>
<th>NAME OF CUT</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh Hams, Skinned</td>
<td>21.0</td>
</tr>
<tr>
<td>Loin, Blade on</td>
<td>18.0</td>
</tr>
<tr>
<td>Boston Shoulder</td>
<td>6.6</td>
</tr>
<tr>
<td>Picnics, Shoulder</td>
<td>8.8</td>
</tr>
<tr>
<td>Bacon, Square Cut</td>
<td>17.3</td>
</tr>
<tr>
<td>Spareribs</td>
<td>3.8</td>
</tr>
<tr>
<td>Jowl, Trimmed</td>
<td>3.0</td>
</tr>
<tr>
<td>Feet, Tail, Neckbones</td>
<td>6.0</td>
</tr>
<tr>
<td>Fat Back, Clear Plate</td>
<td></td>
</tr>
<tr>
<td>and all Fat Trimmings</td>
<td>11.2</td>
</tr>
<tr>
<td>Sausage Trimmings</td>
<td>4.3</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

*Packer Dressed Hog. Head off. Leaf out No allowance for cutting shrink

PORK CHART
POINTS TO REMEMBER WHEN COOKING MEAT IN QUANTITY

Shrinkage during cooking results from:

1. Evaporation, or the loss of water and other volatile substances from the surface of meat as it cooks.

2. Pan drippings, or the loss of fat, water, salts and extractives which accumulate in the utensil as the meat cooks.

Factors affecting shrinkage are:

1. Cooking method
2. Degree of doneness

Low temperatures in meat cookery mean:

1. Less shrinkage of meat
2. More servings available
3. Less fuel consumed
4. Easier control in cooking process
5. Less watching involved
6. Retention of nutritional values
7. Appetite appeal and palatability

Cooking time is affected by:

1. Cooking temperature
2. Size and shape of cut
3. Style of cut
4. Oven load
5. Quality of meat
6. Ageing of meat
7. Doneness desired

National Livestock and Meat Board
Cooking Meat and Poultry

Thawing Frozen Products:
Put wrapped product in refrigerator and thaw completely. Takes several hours. Or may be thawed in water-tight package under cold water. Cook promptly after thawing.

For Unthawed Products:
Allow more time to cook. Example: if a fresh or thawed roast needs 2 hours to cook, a frozen roast the same size may need as much as 3 hours to cook.

Leftovers, Pork, Poultry, Ground Meat:
Heat all the way through.

Using a Meat Thermometer:
Insert thermometer into thickest part of meat—should not be in the fat or touch the bone. For turkeys, insert thermometer into the thickest part of the thigh next to body of bird.

Cook To Temperatures Shown
(Thermometer Inserted Into Meat)

FRESH BEEF
Rare.......................... 140°F.
Medium......................... 160°F.
Well Done...................... 170°F.

FRESH VEAL..................... 170°F.

FRESH LAMB................. 170°F.

FRESH PORK..................... 170°F.

CURED PORK
Ham, Raw (Cook before eating)........ 160°F.
Ham, Fully cooked, (To warm)........ 140°F.
Shoulder (Cook before eating)........ 170°F.
Canadian Bacon (Cook before eating) 160°F.

Poultry
Turkey.......................... 180-185°F.
Boneless Turkey Roasts............ 170-175°F.
Stuffing (Inside or outside the bird) 165°F.

Press fingers on flesh of thigh or breast; if meat is soft, it is done.

Storing Meat and Poultry

To Store In Refrigerator: May be stored as purchased in plastic wrap for a day or two. For longer time, remove from store wrapping and wrap loosely in wax paper or plastic film.

To Store In Freezer: Wrap tightly in freezer paper, plastic film, or foil. Freeze.

Leftovers: Freeze or refrigerate as soon as possible.

Canned Meat And Poultry: Read the label, refrigerate if necessary. Otherwise, store in cool, dry place. Do not buy products in bulging or dented cans.

Storing Time

In refrigerator at 35°F. or less
Eating quality drops after time shown

DAYS MONTHS

FRESH MEATS
Roasts (Beef and Lamb)................ 3 to 5 6 to 12
Roasts (Pork and Veal)................. 3 to 5 4 to 8
Steaks (Beef)......................... 3 to 5 6 to 12
Chops (Lamb)......................... 3 to 5 6 to 9
Chops (Pork)......................... 3 to 5 3 to 4
Ground and Stew Meats.............. 1 to 2 2 to 3
Variety Meats......................... 1 to 2, 3 to 4
Sausage (Pork)....................... 1 to 2, 2 to 3

PROCESSED MEATS
Bacon............................ 7 1
Frankfurters....................... 7 ½
Ham (Whole)...................... 7 1 to 2
Ham (Half)....................... 5 1 to 2
Ham (Slices)..................... 3 1 to 2
Luncheon Meats................. 3 to 5 Freezing
Sausage (Smoked).............. 7 not recommended
Sausage (Dry and Semi-Dry)........ 14 to 21

COOKED MEATS
Cooked Meats and Meat Dishes........ 3 to 4 2 to 3
Gravy and Meat Broth.............. 1 to 2 2 to 3

FRESH POULTRY
Chicken and Turkey (Whole)........ 1 to 2 12
Chicken (Pieces)............... 1 to 2 9
Turkey (Pieces).................. 1 to 2 6
Duck and Goose (Whole)......... 1 to 2 6
Giblets......................... 1 to 2 3

COOKED POULTRY
Pieces (Covered with Broth)........ 1 to 2 6
Pieces (Not Covered)........... 1 to 2 1
Cooked Poultry Dishes........ 1 to 2 6
Fried Chicken.................... 1 to 2 4

Meat and Poultry Inspection Program
Animal and Plant Health Inspection Service
U.S. Department of Agriculture

September 1975
Lesson 2: Meats: Principles of Moist Heat Cookery

Module II: Meats and More

I. Instructor preparation for class activities
   A. Marinate meat for Sauerbraten--24-36 hours. Put on to simmer 2 hours before class
   B. Start beef cubes for stew and pork for chop suey
   C. Assemble equipment needed to prepare recipes chosen to illustrate moist heat cookery
   D. Duplicate sufficient copies of handouts
      1. Recipe for Sauerbraten, Winfield State Hospital
      2. Evaluation of Meats
      3. Scorecard for Moist Heat Meat Cookery
   E. Recipes for this lesson are from Food for Fifty, except for Sauerbraten
   F. Market order--See recipes of items to be prepared
Lesson 2: Meats: Principles of Moist Heat Cookery

LESSON CONTENT

Introduction: Assign participants to groups according to color of folder, also, divide responsibilities within groups

I. Meats suitable for moist heat cookery
   A. Less tender cuts of beef, such as pot roast, chuck beef stew, short ribs, brisket, round steak and soup bones
   B. Collagen is changed to gelatin by moist heat

II. Methods
   A. How to braise meat—see pages 263 and 264: Food for Fifty
      1. Explanation of principle. Is common, but often called "roasting with lid on"
      2. Cuts and grades suitable
      3. Common tenderizing methods
         a. Marinating
         b. Mallet
         c. Commercial powders and liquids
         d. Moist heat method—low temperature
      4. Equipment: heavy pan with close-fitting lid
      5. Procedure
         a. Seasoning
         b. Precooking or frying—brown on all sides in small amount of fat
         c. Basting—add small amount of water
         d. Temperature—cook in 300° F. oven or on stove
         e. Fricassee—such as fowl, rabbit or veal
      6. Testing for doneness: add vegetables just long enough before to be cooked by serving time
     7. Care and storage
     8. Serving
        a. Portion control
        b. Garnishes

CLASS ACTIVITY AND EVALUATION

See student handbook

Review moist heat methods, page 11: "Basics About Beef"
Assign recipes to groups—adjust to 25 servings
Prepare "Swiss Steak", page 266: Food for Fifty, substituting Spanish sauce, page 466, for gravy
Prepare Sauerbraten—recipe from Winfield State Hospital
Demonstrate tenderizing methods:
   Marinating
   Mallet
   Enzyme powder—use on a piece of Swiss steak
   List brands available
   Discuss effects of excessive amounts
### LESSON CONTENT

#### B. How to prepare stews

1. **Explanation of principles**
2. **Suitable cuts and grades**
3. **Preparation**—examine recipe in *Food for Fifty*
   - **Procedure**
     - a. *Seasoning*
     - b. Care during cooking—do not over stir
     - c. Temperature—simmer—do not boil; do not scorch
     - d. Timing—use less water than simmering; liquid in a stew should be thick—vegetables usually added
4. **Variations**
   - a. Irish (Blond stew)
   - b. Brown stews
5. **Serving**

#### C. How to simmer meat—see pages 264 and 265: *Food for Fifty*

1. **Explanation of cooking principle**
2. **Cuts and grades suitable**
3. **Variations in terminology**
   - a. Parboiling
   - b. Steaming—prebrown meat, do not sear, steam in liquid, 375°F oven
   - c. Pressure cooking
   - d. Stewing
   - e. Poaching
4. **Preparation**
   - a. Fresh meat
   - b. Corned beef
5. **Procedure**
   - a. *Seasoning*
   - b. Care in cooking—bring water to a boil and add meat; cover
   - c. Temperature—use a meat thermometer for internal temperature (cook just below boiling point)
6. **Test for doneness**
7. **Serving**
   - a. Portion control
   - b. Garnishes

### CLASS ACTIVITY AND EVALUATION

- Prepare "Beef Stew", page 269: *Food for Fifty*
  - Participants suggest items to complete a menu using stew as main dish
- Simmer "Corned Beef and Cabbage", page 270: *Food for Fifty*
  - Steam "Chop Suey", page 272: *Food for Fifty* (use pork and beef)
- Discuss tools to use in portioning the foods prepared in this class
Lesson 2: Meats: Principles of Moist Heat Cookery

**LESSON CONTENT**

III. Summary of principles of moist heat cookery and evaluation of prepared items using scorecard
   A. Texture
   B. Tenderness
   C. Appearance
   D. Color
   E. Flavor
   F. Yield

IV. Storage of cooked meats

V. Summarize benefits of moist heat cookery
   A. Less expensive cuts may be used successfully
   B. Less tender cuts may be made more palatable
   C. Variety of preparation
   D. Seasonings may be added—the flavors blend and develop in the moisture

Introduce next week's lesson

Assignment: At work this week participants are to observe meat preparation using moist heat cookery methods

**CLASS ACTIVITY AND EVALUATION**

Handout 1: Evaluation of Meats
Handout 2: Scorecard for Moist Heat Meat Cookery

Participants are to refrigerate or freeze prepared products according to accepted practices

Examples: beef chuck, beef rounds, beef stew

Examples: beef brisket

Examples: beef rounds may be cooked by moist and dry heat, resulting in different flavors

From a list of recipes using dry heat cookery methods, adjust recipes to desired quantity and prepare market order
From: Winfield State Hospital and Training Center, Winfield, Kansas

SAUERBRATEN

<table>
<thead>
<tr>
<th>INGREDIENTS</th>
<th>50 SERVINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boned beef-chuck</td>
<td>13 #</td>
</tr>
<tr>
<td>Red wine vinegar</td>
<td>3 cups</td>
</tr>
<tr>
<td>Apple juice or red wine</td>
<td>1 cup</td>
</tr>
<tr>
<td>Water</td>
<td>3 cups</td>
</tr>
<tr>
<td>Bay leaf</td>
<td>2 each</td>
</tr>
<tr>
<td>Peppercorns</td>
<td>10 each</td>
</tr>
<tr>
<td>Whole cloves</td>
<td>6 each</td>
</tr>
<tr>
<td>Salt</td>
<td>4 Tbsp.</td>
</tr>
<tr>
<td>Onions, sliced</td>
<td>4 each</td>
</tr>
<tr>
<td>Shortening</td>
<td>½ cup</td>
</tr>
<tr>
<td>Flour</td>
<td>10 Tbsp.</td>
</tr>
<tr>
<td>Margarine</td>
<td>4 oz.</td>
</tr>
<tr>
<td>Sugar</td>
<td>2 Tbsp.</td>
</tr>
<tr>
<td>Gingersnaps, crushed</td>
<td>3/4 cup</td>
</tr>
</tbody>
</table>

1. Combine the vinegar, apple juice, water, bay leaf, peppercorns, cloves, salt and onions.
2. Keep meat in the refrigerator, covered with the marinade for 1-3 days, turning occasionally.
3. Remove meat from marinade, wipe dry with paper towels and brown in the shortening over high heat, sprinkling with 2 Tbsp. flour.
4. Strain and add marinade, cover, lower heat and cook gently until meat reaches 150°F internally.
5. Remove meat and keep in warm place. Pour off the stock. Slice meat.
6. In the same kettle, melt margarine, add the remaining flour and the sugar, stirring until smooth and browned. Slowly add the stock, cooking until smooth and thickened.
7. Add the crushed gingersnaps, and cook until dissolved.
8. Replace meat in the sauce and cook ½ hour longer. (15 minutes in the Forge).
9. Tastes better the second day.
EVALUATION OF MEATS

It is difficult to give one standard for cooked meat because of the wide variety of meats and the many ways of cooking them. All meat should be of good flavor and pleasing appearance. Drippings should be rich and juicy. The meat should be moist, not dry or crumbly, and have a degree of firmness consistent with its doneness. It should be tender and not pulpy, stringy, or excessively soft, greasy, or oily.

The color should be natural to the meat, cooking and degree of doneness. There should be no burned portions or any burned taste. Roasts should be well browned. Veal roasts—reddish brown; pork roasts—uniformly rich brown surface. Roasted poultry and the other surface of lamb and pork roasts should be crisp, not dry or tough.

Sliced meats should be firm, juicy, and tender and hold its shape. Broiled exterior should be crisp but not brittle, with crispness dictated by personal preference. Browned meats should have a rich brown color with a well-developed flavor and aroma. Broiled bacon should be crisp but not brittle, with crispness dictated by personal preference.

Braised meats when done should be tender and juicy, not stringy, and should hold their shape and not fall apart. There should be a rich gloss from the drippings or gravy over the surface of the meat, and pieces should be uniform, even, symmetrical, and attractive. Unbrowned meats lack the color and the characteristic flavor developed by browning, but otherwise they have qualities similar to browned braised meat.

Deep fried or sauteed products should have a crisp, deep golden brown surface and possess a sweet, nutty flavor. They should have a soft, rich glaze or sheen. These properties may be varied by the frying fat used, for some give more crispness and a deeper color than others.

Covered fried products should have crusts which adhere tightly and are tender, even, and not too thick. The product should not be greasy, and the inside should be moist, hot, succulent, and completely cooked. Outer crusts or surfaces should be tender; edges should not be overcooked.

Evaluate fried foods on the basis of appearance, golden-brown surface, and uniformity of color and shape; texture should be crisp, tender, and light; flavor should be true, pleasing and appetizing.

SCORECARD FOR MOIST HEAT MEAT COOKERY

DIRECTIONS: List the products to be evaluated in the left column. Select and record the word(s) which best describe them. Evaluate against the characteristics of a standard product using a 5-point scale--1=least desirable, 5=most desirable.

<table>
<thead>
<tr>
<th>CUT OF MEAT AND METHOD OF COOKING</th>
<th>EXTERIOR</th>
<th>INTERIOR</th>
<th>TENDERNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plump</td>
<td></td>
<td>Bluish red</td>
<td>Tender</td>
</tr>
<tr>
<td>Slightly moist</td>
<td>Slightly</td>
<td>Cherry red</td>
<td>Slightly</td>
</tr>
<tr>
<td>Slightly shrunken</td>
<td>Shrunken</td>
<td>Pink</td>
<td>tender</td>
</tr>
<tr>
<td>Dry</td>
<td>Dry</td>
<td>Grey</td>
<td>Tough</td>
</tr>
<tr>
<td>Very dry</td>
<td>Very dry</td>
<td>Brown</td>
<td>Very tough</td>
</tr>
<tr>
<td>Well browned</td>
<td>Well browned</td>
<td>Juicy</td>
<td>Fibers tough,</td>
</tr>
<tr>
<td>Pale</td>
<td>Pale</td>
<td>Dry</td>
<td>crumbly</td>
</tr>
<tr>
<td>Burned</td>
<td>Burned</td>
<td>Juicy</td>
<td>Tough and</td>
</tr>
<tr>
<td>Fat</td>
<td>Fat</td>
<td>Dry</td>
<td>solid</td>
</tr>
<tr>
<td>well cooked</td>
<td></td>
<td>Very dry</td>
<td></td>
</tr>
<tr>
<td>raw</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>greasy</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Characteristics of High Quality Meat:

Appearance: All cooked meat is opaque and moist. Color of cooked meat--outside: rich brown; interior: beef, from deep red or pink (rare meat) through a light pink (medium) to a light gray or brown (well done); pork, from almost white to light gray with certain muscles being light brown; veal, predominately light gray.

Tenderness: Some resistance to chewing, but sample should be easily masticated.

Juiciness: Free-flowing juice in cuts cooked to rare stage changing to noticeable moistness in cuts cooked to the well-done stage.

Flavor: Typical for cut of meat; meat flavor should predominate.
Lesson 3: Meats: Principles of Dry Heat Cookery

Module II: Meats and More

I. Instructor preparation for class activities

   A. Before class prepare top round roast in a 325°F oven on a rack with a meat thermometer to an internal temperature of 140°F. Time this so students can take it out of oven at 140°F and record temperature every 5 minutes for 30 minutes.

   B. Prepare Food for Fifty recipe of Meatloaf, dividing it into 5 loaf pans. Bake 4 pans at 325°F to an internal temperature of 160°F. Bake one at 425°F to an internal temperature of 160°F. See Handout 1: Scorecard for Meatloaf.

   C. Assemble equipment needed to prepare recipes chosen to illustrate dry heat cookery

   D. Market order
      10 pounds ground beef for meatloaf
      10 pounds top round
      5 each pork chops, cut 3 per pound
      Ham slice, center cut 1/2 inch thick
      1 pound pork shoulder, strips or cubes
      5 each pork cutlets, cut 4 per round
      5 small Rib eye steaks, 3/4 inch thick
      Other ingredients to prepare recipes

   E. Duplicate sufficient copies of handouts
      1. Scorecard for Meatloaf
      2. How to Operate a Food Slicer
      3. How to Clean a Food Slicer
      4. Scorecard for Dry Heat Meat Cookery
**Lesson 3: Meats: Principles of Dry Heat Cookery**

**Module II: Meats and More**

### LESSON CONTENT

I. Meats to be cooked with dry heat: tenderloin, sirloin, ground beef, rib roast, beef chops, bacon, weiners, pork chops and steaks

II. Methods of dry heat cookery--see pages 253-259: Food for Fifty

#### A. How to roast meats

1. Suitable grades and cuts
2. Care and storage before roasting
3. Explanation of roasting principles
   - Beef—low temperature, meat thermometer, no more than 160° F.
   - Pork—slash fat edges to prevent curling, avoid excessive fat in cooking, cook by dry heat, cook to well-done stage (170°-180° F.)
4. Preparation
   - Fresh meat—salt meat after cooking
   - Frozen meat—proper thawing procedures
5. Equipment
   - Roasting pans
   - Thermometer (Meat)—demonstrate use
   - Other—rack
6. Procedure
   - Seasoning—no need, only slight penetration of flavors
   - Roasting temperature—low to medium low 300°-325° F.
   - Time—if using convection oven, lower temperature by 50° F.
7. Test for doneness
   - Rare—140° F. internal temperature
   - Medium—160° F. internal temperature
   - Well-done—175° F. internal temperature
8. Methods of serving
   - Portion—size
   - Tools
   - Gravies
   - Garnishes

### CLASS ACTIVITY AND EVALUATION

- **Meat charts:** Beef Chart: See Handout 1:3 "Basics About Beef"
  - Pork Chart: See Handout 1:4

- Cooperative demonstration by instructor and students:
  - Compare meatloaves baked at 325° F. and 425° F.
  - Use Handout 1: Scorecard for Meatloaf

- Students:
  - Weigh each meatloaf. Instructor calculate percentage of shrinkage and cost per serving of cooked weight
  - Measure drippings in each pan and compare amount and color
  - Score each meatloaf for flavor, texture, tenderness and eye appeal
  - Discuss methods of portioning meatloaf

- Demonstration on roasting beef:
  - Note: The following demonstrations are to be done by groups of students. Pre-preparation may be done early in lab period, with demonstration and evaluation done before the rest of the group.

- See Instructor preparation for class activities
- Discuss results and implications
- Cover and save for slicer demonstration during last hour of this class period

Bake ham slices with pineapple, see page 299: Food for Fifty
## LESSON CONTENT

### 9. Care of meat
   a. After roasting—allow to remain at room temperature 20-30 minutes after removal from heat. (Gelatin can "set"—makes slicing easier)
   b. During serving period
   c. Storage

### B. How to broil meats, see pages 260 and 261: Food for Fifty

1. **Explanation of principle**
   a. Cook to half doneness
   b. Turn only once

2. **Cuts suitable**
   a. Beef
   b. Pork

3. **Preparation**
   a. Fresh meat
   b. Frozen meat

4. **Equipment**
   a. Fuels used—gas, electricity, charcoal grill
   b. Manipulation of broiler—distance of meat from broiler depends on thickness of meat. May need to turn thick pieces twice
   c. Tools—tongs; never pierce with fork

5. **Procedure**
   a. Seasoning
   b. Searing
   c. Temperature
   d. Time

6. **Test for doneness**
   **Steaks:**
   - Rare—bright pink
   - Medium—pink brown
   - Well-done—light brown

   Use tongs

7. **Methods of serving**
   a. Sauces, gravies, butter and garnishes
   b. Broiled accompaniments

## CLASS ACTIVITY AND EVALUATION

- Students demonstrate slicing roast beef
- Handout 2: How to Operate a Food Slicer
- Handout 3: How to Clean a Food Slicer
- Broil Rib eye steaks—5-6 ounces each
Lesson 3: Meats: Principles of Dry Heat Cookery

Module II: Meats and More

LESSON CONTENT

C. How to pan fry (saute) meats
   1. List cuts suitable for pan frying
   2. Preparation techniques--compare with pan broil
   3. Equipment and utensils
   4. Procedure
      a. Seasoning
      b. Browning--use small amount of fat
      c. Temperature--cook on hot surface; don't cover
      d. Timing
   5. Testing for doneness
   6. Methods of serving
      a. Sauces to accompany sauteed meats. Examples

D. How to fry meats
   1. Principles of frying
   2. Cuts and grades suitable
   3. Preparation
      a. Fresh meats
      b. Frozen meats
      c. Cured meats
   4. Procedure
      a. Seasoning
      b. Dredging or Breading--see page 75: Food for Fifty
      c. Temperature--hot surface with small amount of fat, turn only once
      d. Timing
   5. Testing for doneness
   6. Serving

E. Causes of beef shrinkage
   1. Higher temperature
   2. Longer cooking time
   3. Cooking too quickly
   4. Cooking too done

CLASS ACTIVITY AND EVALUATION

Pan fry or pan broil pork chops, see page 262: Food for Fifty

Oven fry breaded pork cutlet, see page 295: Food for Fifty (recipe for breaded pork chops)
Demonstrate use of 2 hands in breading pork cutlets
Stir fry pork strips or cubes

Handout 3:4 Scorecard for Dry Heat Meat Cookery.
Lesson 3: Meats: Principles of Dry Heat Cookery

Module II: Meats and More

## LESSON CONTENT

<table>
<thead>
<tr>
<th>F. Reasons for avoiding shrinkage</th>
<th>CLASS ACTIVITY AND EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Loss of moisture</td>
<td>Use this example on the board for discussion</td>
</tr>
<tr>
<td>2. Loss of weight</td>
<td></td>
</tr>
<tr>
<td>a. Looks smaller</td>
<td></td>
</tr>
<tr>
<td>b. Looks unappetizing</td>
<td></td>
</tr>
<tr>
<td>3. Increase in cost</td>
<td></td>
</tr>
<tr>
<td>a. Per ounce of meat</td>
<td></td>
</tr>
<tr>
<td>Note: average shrinkage of beef is a loss of 25% of original weight</td>
<td></td>
</tr>
<tr>
<td>b. Per portion</td>
<td></td>
</tr>
</tbody>
</table>

### EXAMPLE:

Beef as purchased = 100 pounds  
Cost of beef per pound = $1.50  
Total cost of beef = $150.00  
Cost of 4 ounce portion = $0.375 (before cooking)

25% shrinkage—average and acceptable—from moderate cooking time and temperature:

Beef as purchased = 100 pounds  
Cooked beef after 25% shrinkage = 75 pounds  
Total cost of beef as purchased = $150.00  
Cost of beef per pound before shrinkage = $1.50  
Cost of beef per pound after shrinkage = $2.00  
Loss in cooking beef = $0.50 per pound  
Cost of 4 ounce portion = $0.50

40% shrinkage—higher temperature and longer cooking time:

Beef purchased = 100 pounds  
Cooked beef after 40% shrinkage = 60 pounds  
Total cost of beef purchased = $150.00  
Cost of beef per pound before shrinkage = $1.50  
Cost of beef per pound after shrinkage = $2.50  
Loss in cooking beef = $1.00 per pound  
Cost of 4 ounce portion = $0.625

### Assignment:

Bring at least 2 pictures of poultry prepared by 2 different methods.
**SCORECARD FOR MEATLOAF**

<table>
<thead>
<tr>
<th>Wt. before Cooking (oz.)</th>
<th>Volume of Drippings (cups)</th>
<th>Color of Drippings</th>
<th>Appearance of Meat</th>
<th>Weight after cooking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meatloaf roasted at 325°F to internal temp. of 160°F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meatloaf roasted at 425°F to internal temp. of 160°F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Taste the two meatloaves. Which one is juicier?

Slice each meatloaf into 3 oz. portions. How may servings did you get from the meatloaf cooked at 325°F? From the roast cooked at 425°F?

Compare the weight loss: weight before cooking—weight after cooking.
HOW TO OPERATE A FOOD SLICER

Food Slicer - A food slicer is an adjustable power knife that contains a revolving blade. Food is passed across the revolving blade to be sliced. It can be used to slice meats, vegetables, fruits, and cheese.

1. The operation of a slicer
   a) Check to see that the switch is in the "off" position.
   b) Plug in the slicer.
   c) Place food in the carriage and hold it firmly in place by means of the food holder.
   d) Adjust the blade control indicator for desired thickness of slice.
   e) Turn the switch on.
   f) Move the carriage back and forth across the blade, using the handle.
   g) When finished, turn the switch off and unplug the slicer.

2. The safe use of a slicer
   a) All electrical connections should conform with the National Electrical Code Requirements and other state and local requirements.
   b) When cleaning a slicer, do not let water come in contact with the motor or electrical wiring.
   c) Never use a slicer when the blade guard is off.
   d) Always keep hands away from the blade when the machine is in operation; never catch food with hands.
   e) Keep the plug out of the socket when the machine is not in use. Be certain the guard is on the slicer before putting the plug in the socket.
   f) Always make certain the switch is off and the plug is pulled out of the socket before cleaning.
   g) When disconnecting a slicer, pull the plug; do not pull the cord.
   h) Never use a metal instrument to scrape food particles from the slicer knife.
   i) Make sure your hands are dry before operating the slicer.
   j) Be sure the cord is dry and free from grease.
   k) Do not use very hot water or steam in cleaning the slicer.
   l) Keep the blades sharpened according to the manufacturer's instructions.
HOW TO CLEAN A FOOD SLICER

<table>
<thead>
<tr>
<th>When</th>
<th>How</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>After each use</td>
<td>1. Turn off machine</td>
<td>Hot machine detergent solution, going brush</td>
</tr>
<tr>
<td></td>
<td>2. Remove electric cord from socket</td>
<td>Clean hot water, 170°F for 1 minute. Use double S hook to remove parts from hot water</td>
</tr>
<tr>
<td></td>
<td>3. Set blade control to zero</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Remove meat carriage (a) Turn knob at bottom of carriage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Remove the back blade guard (a) Loosen knob on the guard</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Remove the top blade guard (a) Loosen knob at center of blade</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Take parts to pot-and-pan sink, scrub.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Rinse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. Allow parts to air dry on clean surface</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10. Wash blade and machine shell</td>
<td>Use damp bunched cloth* dipped in hot machine detergent solution</td>
</tr>
<tr>
<td></td>
<td>Caution: Proceed with care while blade is exposed.</td>
<td>Clean hot water, clean bunched cloth</td>
</tr>
<tr>
<td></td>
<td>11. Rinse</td>
<td>Clean water, chemical sanitizer, clean bunched cloth</td>
</tr>
<tr>
<td></td>
<td>12. Sanitize blade, allow to air dry</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13. Replace front blade guard immediately after cleaning shell (a)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tighten knob</td>
<td></td>
</tr>
<tr>
<td></td>
<td>14. Replace back blade guard (a) Tighten knob</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15. Replace meat carriage (a) Tighten knob</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16. Leave blade control at zero</td>
<td></td>
</tr>
<tr>
<td></td>
<td>17. Replace electric cord into socket</td>
<td></td>
</tr>
</tbody>
</table>

*Fold cloth to several thicknesses
# Scorecard for Dry Heat Meat Cookery

**Directions:** List the products to be evaluated in the left column. Rate each by choosing the word(s) which best describe it. Record in the appropriate column. Evaluate against the characteristics of a standard product.

<table>
<thead>
<tr>
<th>Cut of Meat and Method of Cooking</th>
<th>Exterior</th>
<th>Interior</th>
<th>Texture</th>
<th>Tenderness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plump</td>
<td>Bluish red</td>
<td>Fine</td>
<td>Tender</td>
</tr>
<tr>
<td></td>
<td>Slightly moist</td>
<td>Cherry red</td>
<td>Coarse</td>
<td>Slightly tender</td>
</tr>
<tr>
<td></td>
<td>Slightly shrunken</td>
<td>Pink</td>
<td>Tough</td>
<td>Tough</td>
</tr>
<tr>
<td></td>
<td>Shrunken</td>
<td>Grey</td>
<td>Tough fibers</td>
<td>Very tough</td>
</tr>
<tr>
<td></td>
<td>Dry</td>
<td>Brown</td>
<td>Tough connecting tissue</td>
<td>Fibers tough</td>
</tr>
<tr>
<td></td>
<td>Very dry</td>
<td>Very juicy</td>
<td>Very juicy</td>
<td>Crumbly</td>
</tr>
<tr>
<td></td>
<td>Well browned</td>
<td>Juicy</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pale</td>
<td>Dry</td>
<td>Tough and solid</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Burned</td>
<td>Very dry</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>well cooked</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Raw</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Greasy</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Oily</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Hard</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Roast</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Bake</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Broil</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pan fry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pan broil</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oven fry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stir fry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lesson 4: Principles of Poultry Cookery       Module II: Meats and More

I. Instructor preparation for class activities

A. Assemble equipment
   1. Deep fat fryer

B. Market order
   1. Large roasting chicken or small turkey--5-6 pounds
   2. Whole dressed chicken to be cleaned by student
   3. 1 cut-up chicken for oven frying
   4. Frozen chicken pieces for deep fat frying (breaded)
   5. Stewing chicken
   6. Other items as necessary for recipes chosen by students

C. Duplicate sufficient copies of handouts
   1. Deep fat fryer
   2. Cleaning and safety
   3. Scorecard for poultry cookery
Lesson 4: Principles of Poultry Cookery

Module II: Meats and More

LESSON CONTENT

I. Common types
   A. Chicken, Duck, Goose, Turkey, Squab, Guinea
   B. Since 1968, poultry use in Federally funded programs must be inspected for wholesomeness (School Food Service, Congregate Nutrition Programs)

II. Market forms
   A. Whole—the larger the bird, the higher proportion of meat
   B. Parts (quarters, halves, eighths)
   C. Boneless (breast)
   D. Roll
   E. Cooked, pulled I.Q.F. chicken
   F. Cooked, diced, I.Q.F. turkey and chicken
   G. Canned, boned or whole small chicken
   H. Others

III. Service—a year-round menu item
   A. Main dish—a single entree or a casserole
   B. Salad—either hot or cold
   C. Soup
   D. Sandwich—either hot or cold

CLASS ACTIVITY AND EVALUATION


Make a collage or poster of pictures of poultry served in various ways—each student bring 2 pictures

Class will discuss how they buy chicken
Ask class how they serve poultry
**FOOD SERVICE EMPLOYEE SHORT COURSE**

Lesson 4: Principles of Poultry Cookery  
Module II: Meats and More

### LESSON CONTENT

#### IV. Common classes

Class of poultry refers to physical characteristics due to age and sex. Example--A broiler/fryer chicken is under 12 weeks, either sex, under-mated with smooth, textured skin and flexible breastbone cartilage. The class often indicates the preferred method of cooking.

- A. Broiler
- B. Fryer
- C. Roaster
- D. Stewer

#### E. Factors for determining quality in poultry

1. Age
2. Sex
3. Weight
4. Appearance of head, feet, breast, wings, legs and skin

### CLASS ACTIVITY AND EVALUATION

Class discussion of classification of poultry used in their facility and recipes used with each classification.

#### V. Common practices for storing

**A. Fresh**

1. Requires strict attention, because it perishes quickly
2. Refrigerate quickly after receiving
   - Use ice
   - Store in coldest part of cooler
3. Keep no longer than 1-2 days

**B. Frozen** (Keep poultry frozen before using if possible)

1. Perishes quickly during thawing process
2. Keep frozen 1-2 days before service--remove only what is needed
3. Thaw in refrigerator--DO NOT THAW AT ROOM TEMPERATURE

Remove from carton and thaw in original wrappings in refrigerator at 35-40°F.
LESSON CONTENT

Thaw under cold, running water—never use warm or hot water. Chicken will thaw in 1-2 hours. Turkey and larger birds will thaw in 2-6 hours.

4. Allow the following times for thawing poultry in refrigerator:
   a. Chicken, whole or cut-up—1-2 days
   b. Turkey
      whole, 18 pounds and over—2-3 days
      whole, under 18 pounds—1-2 days
      parts—about 1 day
      breasts—overnight

5. Microwave according to directions

6. Cook as soon as possible after thawing—never hold thawed poultry for more than 24 hours. Do not refreeze

7. Freeze-dried chicken may be stored at room temperature until rehydrated; then refrigerate same as fresh or frozen poultry

VI. Cleaning poultry
   A. Pull out feathers not originally removed—remove giblets
   B. Wash with cold, running water
   C. Drain
   D. Refrigerate until ready for use

VII. Factors affecting methods
   A. Age of bird
      1. Cook older birds with moist heat
      2. Cook younger birds with dry heat
   B. Size of bird
      1. Cook larger birds with dry heat
      2. Cook smaller birds with moist heat

Note: Younger and larger birds have a high degree of fat, therefore, they are cooked with dry heat.

CLASS ACTIVITY AND EVALUATION

Student cleans chicken with guidelines given by instructor.
Lesson 4: Principles of Poultry Cookery

Module III: Meats and More

LESSON CONTENT

VIII. General principles

A. Poultry cooked so that finished product will be juicy, tender and evenly done to the bone.

B. Cook at low temperature (simmer on top of range or roast at 325°F in oven) to soften connective tissues, but not to harden muscle tissue.

C. Use cooking methods appropriate for tenderness of the bird.

D. Use cooked poultry (refrigerated) within 24 hours.

IX. Methods

A. Roast -- 325°F.
   1. Whole turkeys, turkey breasts or turkey rolls.
   2. To reduce cooking time of whole turkeys, cut into parts.
   3. Chicken parts or quarters may be roasted (325°F.).
   4. Use meat thermometer -- turkey done when thermometer reads 180°F in inner thighs of whole turkey or 170°F in turkey breast.
   5. Stuffing is to be baked separately.

B. Broil
   1. Adjust rack to place upper surface of poultry approximately 3 inches from source of heat.
   2. Use only pieces 1-3 inches thick and tender cut.
   3. Wipe surfaces with paper towels to remove excess water and brush with fat.
   4. Use tongs rather than fork to turn to reduce loss of juices.

C. Oven frying
   1. This is a popular method of preparing chicken in quantity.
   2. Pour fat over chicken parts, place on a greased pan, bake at 400°F (maximum) for 45 minutes.
   3. If cooking with convection oven, reduce oven temperature by 50°F and shorten cooking time by 1/3.

CLASS ACTIVITY AND EVALUATION

Test for doneness.

Turkey: internal temperature
Note: place thermometer in thigh for whole birds.
Flesh -- 185°F.
Breast or thigh -- 175°F.
Stuffing -- 165°F. (in separate pan -- not stuffed in bird).

Chicken: use time tables and temperature control.
See page 335: Food for Fifty.

Roast 4-5 pound whole chicken -- use meat thermometer and timetable. See pages 337 and 338: Food for Fifty.

Evaluate doneness: Internal temperature of bird.
Use of timetable as general guide.
Allow to remain 20-30 minutes after removal from heat.
This allows gelatin to "set" and makes it easier to slice.

Broil 1/2 chicken -- cut whole chicken in half; season and brush with oil or melted fat. Broil 20-30 minutes or until brown; turn. Brush again with fat and broil 15-25 minutes longer. See pages 261 and 336: Food for Fifty. Allow 60-75 minutes broiling time for pieces of small turkeys.

Oven fry several pieces of chicken from scratch and from precooked. Coat poultry pieces with seasoned flour and then dip in melted fat to coat both sides. Place in greased baking dish, skin side down. Cook 30 minutes, turn and cook 20-30 minutes longer. See page 336: Food for Fifty.
D. Deep-fat frying
Coat poultry pieces with thin batter, flour or crumbs. Use deep-fat fryer and fat enough to cover pieces well. Heat fat to 365°F; check temperature with thermometer. Fry a few pieces at a time for 10-15 minutes. Drain in basket or on paper towels. Larger pieces can be browned in deep fat, placed in baking pans and finished in a 325° oven for 20-30 minutes.

X. Methods of Moist Heat Cookery

A. Braising
1. This method used for older, tougher poultry
2. Dredge in seasoned flour and brown in hot fat in heavy skillet. Add water or clear chicken broth, cover and cook in oven at 325°F. Braising temperature shouldn't exceed 185°F.

B. Steaming
1. Poultry for a la king, curries and creamed dishes can be steamed
2. Use of the compartment steamer will greatly reduce the cooking time

C. Stewing
1. Poultry can be stewed in compartment steamers or steam-jacketed kettles
2. Poultry prepared in this way can be used in stews, a la king and curries
3. Stewing temperatures should not exceed 185°F
4. For serving: Cool whole chicken for 20-30 minutes; slice and serve
5. For storage: Cool cooked poultry on wire rack until cool enough to handle. Remove meat from bone. Spread pieces of meat in one layer to cool. When cool, wrap loosely in foil. Store in refrigerator (36-40°F).
   Use within 2 days after cooking

Handout 1: Deep Fat Fryer
See Preparing Food for Deep Fat Frying, page 75: Food for Fifty
See Deep Fat Frying Temperature, page 76: Food for Fifty
Prepare Deep-Fat Fried Chicken, pages 262, 336 and 339: Food for Fifty
Compare deep fat fried chicken from scratch, with redi-breaded and redi-fried chicken that have been heated in the oven

Handout 2: Scorecard for Poultry Cookery
See Stewed Chicken, page 336: Food for Fifty
Stew a chicken in preparation for Chicken Fricassee, page 342: Food for Fifty
Season and place in deep kettle with just enough water to cover. Bring to boil. Reduce heat; cover kettle and simmer until meat is tender—2-3 hours
Note—Freeze Stewed Chicken for chicken salad in Lesson 6

Handout 2: Scorecard for Poultry Cookery
DEEP FAT FRYER

HOW TO USE

1. The fat should cover the uppermost coil at all times when fryer is in operation.

2. Turn switch "on".

3. Set thermostat at desired temperature. Temperature at 400 Degrees will burn fat.

4. Do not overload basket. Frozen food items or heavy items such as chicken will stick together if too many pieces are placed in the basket at the same time.

5. Have food as free of moisture as possible before frying. Excess moisture causes fat to foam, spatter, or boil over. It also causes some fats to break down and shorten their usual life. Salt will also break down fat.

6. Turn "off" when not in use.

7. Avoid excess breading from accumulating in fat by shaking off excess breading in strainer or colander before placing food in fryer.

8. Do not lower basket into fryer until light goes off. This indicates the fat has heated to the desired temperature indicated on the thermostat.

9. Frying temperature will vary with size and temperature of food pieces and the amount of food placed in the fryer at one time. If overloaded, food may become grease soaked. If food is frozen, use lower temperatures listed and allow additional cooking time.

10. Vegetables breaded before cooking should be drained on absorbant paper after cooking to eliminate any excess fat.

11. Vegetables should be deep fat fried in small batches just prior to serving and replenished as needed. Holding on steamtables wilts a crisp, french-fried vegetable rapidly.
CLEANING

1. Regular draining and cleaning necessary.

2. The heating element should be turned off.

3. Cool fat at 150 degrees

4. Drain fat out of fryer (before returning wash container and baskets).

5. When elements and container appear "gummy", follow this procedure:
   1. Remove fat
   2. Fill to fat level with hot water
   3. Add 1 cup vinegar
   4. Add 1/2 cup dishwashing detergent
   5. Turn on heating element and bring to boil; boil 5-10 minutes.
   6. Clean; rinse twice.

SAFETY

1. Do not turn temperature to 400 degrees.

2. Do not throw water on a fat fire. Replace metal cover.

3. Drain water or moisture off food before placing in fryer.

4. Avoid overloading.

5. Clean up any grease on floor immediately.

6. Practice safety when transferring fat.
SCORECARD FOR POULTRY COOKERY

DIRECTIONS: List the products to be evaluated in the left column. Select and record the word(s) which best describe them. Evaluate against characteristics of a standard product using a 5-point scale. 1=least desirable, 5=most desirable.

<table>
<thead>
<tr>
<th>PRODUCT AND METHOD OF PREPARATION</th>
<th>APPEARANCE</th>
<th>TEXTURE AND TENDERNESS</th>
<th>PALATABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plump</td>
<td></td>
<td>Crisp</td>
<td>Good color</td>
</tr>
<tr>
<td>Slightly moist</td>
<td></td>
<td>Limp</td>
<td>Under done</td>
</tr>
<tr>
<td>Slightly shrunkken</td>
<td></td>
<td>Fat</td>
<td>Burned</td>
</tr>
<tr>
<td>Dry</td>
<td></td>
<td>Well-cooked</td>
<td>Good flavor</td>
</tr>
<tr>
<td>Well browned</td>
<td></td>
<td>Uncooked</td>
<td>Raw</td>
</tr>
<tr>
<td>Pale</td>
<td></td>
<td>Soggy</td>
<td>Strong</td>
</tr>
<tr>
<td>Burned</td>
<td></td>
<td>Tender</td>
<td>Tasteless</td>
</tr>
<tr>
<td>Flesh</td>
<td></td>
<td>Slightly tough</td>
<td>Greasy</td>
</tr>
<tr>
<td>No red</td>
<td></td>
<td>Easily cut</td>
<td></td>
</tr>
<tr>
<td>Slightly red</td>
<td></td>
<td>Falling apart</td>
<td></td>
</tr>
<tr>
<td>Bright red</td>
<td></td>
<td>Tough and solid</td>
<td></td>
</tr>
<tr>
<td>Juicy</td>
<td></td>
<td>Tough</td>
<td></td>
</tr>
<tr>
<td>Dry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very dry</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

207
Lesson 5: Principles of Fish Cookery

Module II: Meats and More

I. Instructor preparation for class activities

A. Obtain a film on fish and shell fish preparation

B. Duplicate sufficient copies of handouts
   1. Some Facts About Fish Cookery
   2. Scorecard for Fish Cookery

C. Market order:
   See lesson plan. Select fish to demonstrate classes, market forms, and methods of cookery in this lesson. Quantities may be small for student demonstrations.
## Lesson Content

### I. Classes

#### A. Fin
1. Mackerel
2. Cod
3. Flounder
4. Perch
5. Salmon

#### B. Shellfish
1. Lobster
2. Clams
3. Oysters
4. Shrimp
5. Scallops

### II. Market forms

#### A. Fresh
#### B. Frozen
#### C. Canned
#### D. Cured
#### E. Dried
#### F. Smoked
#### G. Pickles

### III. Fat content

#### A. Lean--moist heat cookery
1. Catfish
2. Cod
3. Flounder
4. Haddock
5. Sole

### Class Activity and Evaluation

- **Handout 1:** Some Facts About Fish Cookery
- **See pages 232-236:** Food for Fifty
Lesson 5: Principles of Fish Cookery

Module II: Meats and More

LESSON CONTENT

B. Variable--dry or moist heat cookery
   1. Halibut
   2. Salmon

C. Fat--dry or moist heat cookery
   1. Mackerel
   2. Trout
   3. Tuna

IV. Thawing
   A. In refrigerator just prior to cooking
   B. In unopened package under cold, running water
   C. Fish portions and fish sticks should not be thawed before cooking

V. Principles of cookery
   A. Fish by nature is tender and free of tough fibers, so it should be cooked quickly. Cooked fish should be juicy, flavorful, tender and is done when it flakes easily
   B. Avoid overcooking--fish should generally be cooked at a moderate temperature. Fish should be cooked rapidly enough to retain juices and moisture, but slowly enough to insure thorough cooking
   C. Coat all fried fish
      1. Breading
      2. Batter
   D. Use gentle heat when possible, but cook quickly
   E. Do not depend on fish meat to change color for test of doneness--Note: The test for fish doneness is flaky meat

CLASS ACTIVITY AND EVALUATION

See Fish Buying and Cooking Guide, page 235: Food for Fifty

Demonstration on cookery:
Note: The following demonstrations are to be done by groups of students. Pre-preparation may be done early in lab period, with demonstration and evaluation done before the rest of the group.

Film: Fish and Shellfish Preparation (Super 8 mm cassette)--FNIC
Lesson 5: Principles of Fish Cookery

Module II: Meats and More

LESSON CONTENT

VI. Methods

A. Baking
   1. Fish suitable--any of the fat fish. Lean fish will need added fat or sauces
   2. Preparation--Grease pan or use foil to prevent sticking. Paint or dot with margarine to prevent drying out
   3. Procedure--Seasoning
      Temperature--cook at 350°F-500°F. (recipes vary)
   4. Timing--Cook 6-11 minutes per pound
      Cook frozen fish 9-16 minutes per pound
   5. Test for doneness--flaky meat. Do not overcook. Overcooked fish is tough and rubbery
   6. Methods of serving

B. Broil
   1. Fish suitable--preferably fat fish that are 3/4 inch-2 inches thick (Thinner pieces are too fragile, and thicker pieces will not get done)
   2. Preparation--Paint lean fish with oil
   3. Procedure--Cook on preheated broiler pan with rack
      Place 2 inches-4 inches from heat
      Broil until half done and brown
      Turn fish
   4. Test for doneness--flaky

C. Pan fry
   1. Use whole fish, fillets or steaks
   2. Preparation--heat pan (if smokes, reduce heat)
   3. Procedure--Bread fish in flour, cornmeal or fine bread crumbs
      Add small amount of fat to cooking surface
      Cook on medium heat of 300°F-350°F
      Heat cooking surface

CLASS ACTIVITY AND EVALUATION

Prepare Baked Fish Fillets, page 240: Food for Fifty

Distinguish between a fish fillet and a fish steak

Broil sole fillets: Sprinkle with salt and pepper
Place skin side down on well-greased, preheated broiler
Cook about 10 minutes
Turn skin side up long enough to brown and crisp
Serve with melted butter and chopped parsley

Pan fry perch fillets--follow directions at left
Lesson 5: Principles of Fish Cookery

**Module II: Meats and More**

### Lesson Content

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Place single layer of fish on cooking surface.</td>
</tr>
<tr>
<td>2.</td>
<td>Cook 5-6 minutes or until brown.</td>
</tr>
<tr>
<td>3.</td>
<td>Turn fish.</td>
</tr>
<tr>
<td>4.</td>
<td>Cook 4-5 minutes or until brown.</td>
</tr>
<tr>
<td>5.</td>
<td>Test for doneness—meat will flake when pushed aside.</td>
</tr>
</tbody>
</table>

**Deep Fat Fry**

1. Fish suitable.
2. Preparation—Bread fish. Shake excess breading from fish.

**Poaching—For Fillets or Thick slices of Fish**

1. Lean fish is less likely to fall apart.
2. Preparation—Place a single layer of fish in shallow, wide pan—season with herbs. Barely cover fish with liquid such as milk. Fish is sometimes wrapped in cheesecloth.
4. Test for doneness—Fish flakes easily when tested with a fork.

### Class Activity and Evaluation

- Deep fry haddock fillets or shrimp, page 70: *Food for Fifty*
- Poach flounder fillets, page 281: *Food for Fifty*
- See Acidulated Water and Court Bouillon, page 234: *Food for Fifty*
- Handout 2: Scorecard for Fish Cookery

**VII. Garnishes suitable for fish, page 251:** *Food for Fifty*

**VIII. Evaluation of fish preparation methods**

**IX. Summary—See Quantity Food Production, Knight and Kotschevar, pages 376-394**
SOME FACTS ABOUT FISH COOKERY

WHAT

1. Fat fish such as salmon, trout, tuna, whitefish, and mackerel are best baked, broiled, or pan fried.

2. Lean fish include shellfish, cod, haddock, flounder (sole), halibut and are best when poached or steamed.

Dry Heat Method

3. If lean fish are broiled or baked, fat is often added; melted butter, oil, or rich sauces are frequently used.

4. Frying in a pan or deep fat is popular method of cooking all fish.

Oven-fry fish by dipping serving portions in salted milk (1 c. milk / 2 t salt), rolling in fine crumbs, placing on greased baking pan, pouring on melted fat or oil, and cooking on the top shelf of the oven until tender and brown.

5. Low to moderate heat is recommended for fish.

6. Cook fish a short time to avoid overcooking, and cook only until the flesh flakes and separates easily from the bone.

7. To bake fish, salt them and dip in melted fat and lemon juice; top with melted fat. Mayonnaise may be brushed on fish before broiling or baking.

Moist Heat Method

8. Fish cooked by moist heat are often served plain, in salads, or with a sauce in casseroles.

9. To cook in water, place fish in a wire basket or tie with cheesecloth; simmer 10 min.

10. To steam, place fish on greased steamer pan over boiling water for 10 minutes; or season and wrap in aluminum foil and bake at 450 degrees.

11. Chowder is another moist heat method to cook fish in which vegetables are added, with the liquid being water, milk, tomato juice or a combination.

WHY

1. The natural fat content of fish high in fat prevents them from becoming dry.

2. In preparing fish in which the fat content is low, moist method is satisfactory.

3. Fat is added to lean fish to prevent them from becoming dry.

4. Frying adds fat and crispness to fish.

Oven-frying fish is a quick and easy method, and fish are lower in fat than if fried in a skillet or in deep fat.

5. If cooked at a high temperature, the protein of fish becomes tough.

6. The connective tissue in fish, largely collagen, softens readily during cooking. Fish lose their shape if overcooked and become dry and tasteless.

7. To add fat and flavor to fish, fats and tart sauces are used in preparing and serving.
12. Shellfish are cooked at a low temperature for a short time.

13. Accompaniments for fish are often tart in flavor and contrasting in color.

Some garnishes for fish include:
- Beets
- Carrot sticks
- Celery
- Cranberry sauce
- Cucumbers
- Hard-cooked eggs
- Green peppers
- Lemon
- Paprika
- Parsley
- Pickles
- Radishes
- Tomatoes
- Watercress

Frozen Fish

14. Frozen fish may be completely thawed before cooking if they are to be breaded or stuffed. Fish may be thawed at refrigerator temperature. Whole or drawn fish may be thawed quickly by immersion in cold running water.

15. Fillets, steaks, and dressed whole frozen fish may be cooked frozen if additional cooking time is allowed.

16. Do not thaw fish at room temperature.

Care of Fish

17. Fish must be handled carefully. Two days is the maximum time to hold fresh fish which are cooled and stored. Frozen fish must be kept below zero until ready for use.

18. Fish turn rancid quickly.

19. Seafood deteriorates more rapidly than meat because of its higher moisture content and because the enzymes are more active at cold temperature. A sharp ammonia odor indicates deterioration.

18. Because the fat in fish is polyunsaturated, it becomes rancid quickly.

From: *Food Preparation Study Course*, Iowa State University Press, 1971.
## Scorecard for Fish Cookery

<table>
<thead>
<tr>
<th>Variety of Fish</th>
<th>Method of Preparation</th>
<th>Appearance</th>
<th>Texture and Tenderness</th>
<th>Juiciness</th>
<th>Flavor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bake</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Broil</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>Panfry</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>Deep-fat Fry</td>
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<tr>
<td></td>
<td>Poach</td>
<td></td>
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</tbody>
</table>

### Characteristics of High Quality Cooked Fish

**Appearance:** Typical for method of cookery; boiled and poached products will not have a browned surface; surface of fish cooked by broiling, baking, or frying will generally have a golden brown surface.

**Texture:** Fish easily separates into flakes.

**Juiciness:** Flakes of fish will appear moist.

**Tenderness:** Some resistance to chewing, but sample should be easily masticated.

**Flavor:** Typical of variety of fish or seafood but not a distinct fish flavor or aroma.

Select and record the word(s) which best describe them. Evaluate against characteristics of high quality cooked fish using a 5 point scale—1=least desirable, 5=most desirable.
Lesson 6: Preparation of Meat Salads and Variety Meats

Module II: Meats and More

I. Instructor preparation for class activities

A. Assemble pictures of meat salads and variety meats to use in class discussion of a high quality product

B. Market order
   See recipes for class preparation

C. Duplicate sufficient copies of handouts
   1. Scorecard for Main Dish Salads
   2. Variety Meats
   3. Timetable for Cooking Variety Meats
   4. Recipes: Liver Loaf and Liver-and Onions
   5. Scorecard for Liver
   6. Evaluation of Short Course
# Lesson Content

## I. Types

A. **Include:**
   - 1. Meat
   - 2. Fish
   - 3. Eggs
   - 4. Cheese

B. **May be varied by use of gelatin**

C. **Served with a variety of dressings**

D. **May have ingredients ground instead of chopped and be used as sandwich filling.**

## II. Nutritional contribution

A. **Protein content**—Use of foods high in Vitamin B Complex
   - 1. Eggs
   - 2. Cheese
   - 3. Meat
   - 4. Fish

B. **Will increase minerals, vitamins and bulk due to use of vegetables**

C. **Salad dressing adds calories**

D. **Increases attractiveness and variety of meals**

## III. Parts

A. **Underliner**

B. **Body**

C. **Dressing**

D. **Garnish**

Show examples of these parts and elaborate on their importance.
### LESSON CONTENT

**IV. Essential elements**

<table>
<thead>
<tr>
<th>A. Greens</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Clean</td>
</tr>
<tr>
<td>2. Cool</td>
</tr>
<tr>
<td>3. Tasty</td>
</tr>
<tr>
<td>4. Crisp</td>
</tr>
<tr>
<td>5. Bite-sized pieces</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Vegetables</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Drained</td>
</tr>
<tr>
<td>2. Proper temperature</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. Protein item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cold</td>
</tr>
<tr>
<td>2. Dry</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D. Dressing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Correct</td>
</tr>
<tr>
<td>2. Properly seasoned</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E. Served at proper temperature</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>F. Appropriate garnish</th>
</tr>
</thead>
</table>

**V. Showing of film**

- "A Cool Head for Salads" - Discussion of important points in film

**VI. Salad preparation**

<table>
<thead>
<tr>
<th>A. Chicken salad</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Chicken</td>
</tr>
<tr>
<td>2. Green grapes</td>
</tr>
<tr>
<td>3. Pineapple</td>
</tr>
<tr>
<td>4. Almonds</td>
</tr>
</tbody>
</table>

### CLASS ACTIVITY AND EVALUATION

Class discussion: Compare a list of characteristics of a high quality meat salad. Record these on the bottom of Handout 1: Scorecard for Meat Salads

Film: FS-106 -- "A Cool Head for Salads" -- 10 minutes, National Educational Media, Inc., 15760 Ventura Boulevard, Encino, California 91436 (213)-990-2125

Select recipes from Luncheon Salads and Sandwiches Section: Food for Fifty

Prepare meat salads
### Lesson 6: Preparation of Meat Salads and Variety Meats

#### Module II: Meats and More

**Lesson Content**

<table>
<thead>
<tr>
<th>B. Beef salad</th>
<th>C. Ham salad</th>
<th>D. Seafood salad</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Diced beef</td>
<td>1. Diced ham</td>
<td>1. Tuna or salmon</td>
</tr>
<tr>
<td>2. Celery</td>
<td>2. Celery</td>
<td>2. Diced celery</td>
</tr>
</tbody>
</table>

#### VIII. Evaluation of salads

- **Liver**
  - Offers variety to menu and nutritional contribution in the diet
  - Purchasable forms
    1. Whole and Frozen—Slices easily if only partially thawed. External attachments and large blood vessels are more easily removed

#### VII. Proper tools should be used to mix meat salads. Because bare hands may be a source of infection that may cause food poisoning, they should not be used in the mixing. Discuss the precautions in making chicken salad.

#### IX. Liver

- Offers variety to menu and nutritional contribution in the diet
- Purchasable forms
  1. Whole and Frozen—Slices easily if only partially thawed. External attachments and large blood vessels are more easily removed

---

**Handout 1:** Scorecard for Main Dish Salads

**Handout 2:** Variety Meats

**Handout 3:** Timetable for Cooking Variety Meats

Compare nutritional contribution of liver with other meat.

Class discussion of general acceptance of variety meats among clients.
Lesson 6: Preparation of Meat Salads and Variety Meats

LESSON CONTENT

2. Sliced and Frozen--From 7-12 pounds beef liver or 2-4 pounds pork liver
   Slices should be trimmed free of all external attachments, ragged edges and large blood vessels
3. Slices should be uniform--3/8 inch - 1/2 inch thick
4. Sliced liver layer packed, with each layer separated with moisture resistant paper
5. Outer skin (thin membrane) from each slice should be removed before slicing

C. Safety--Sanitation
1. Highly perishable
2. Purchase fresh frozen and used immediately after purchasing
3. Store only one day in refrigerator if unable to use at once

D. Preparation techniques--Cook at low temperature a short time
   Cook to well done stage
1. Dry heat--plain or breaded
   a. Broil 5-8 minutes (until liver loses color)
      Dip slices of liver into melted margarine
      Place slices on cold broiler rack; Turn broiler on and cook 3 minutes on each side (2-4 inches from the heat)
   b. Pan frying
      Brown meat on both sides in small amount of fat
      Season with salt and pepper--DO NOT COVER
      Cook at moderate temperature until done (5 minutes)
      Remove from pan and serve at once
   c. Bake
      Test for doneness: Remove from heat when beads of moisture form on top of liver or when no blood appears if liver is punctured with a fork. Do not overcook. A total of 5 minutes cooking time may be enough. Liver should be cooked only long enough to bring about a color change in the interior

CLASS ACTIVITY AND EVALUATION

Broil slices of liver and bacon strips in hot broiler

Pan fry liver with bacon, page 308: Food for Fifty

Prepare Liver Loaf, Oklahoma State Department of Health

Liver and Onions, Oklahoma State Department of Health
### LESSON CONTENT

2. Moist heat—soaking liver in milk before cooking improves the flavor
   - Braise—Brown meat in fat in heavy skillet, season with salt and pepper
   - Add small amount liquid and cover tightly
   - Cook low temperature until tender

E. Ways to garnish liver for eye-appeal and acceptance
   1. Onions
   2. Sauces
   3. Vegetables

F. Evaluation of various methods of liver preparation

X. Evaluation of short course

### CLASS ACTIVITY AND EVALUATION

Braised Liver, pages 308 or 256: Food for Fifty
   - with Spanish Sauce, Page 466: Food for Fifty

Class discussion: Compile a list of characteristics of high quality liver preparation. Record these on bottom of Handout 5: Scorecard for Liver

Handout 5: Scorecard for Liver
   - Class discussion of principles of meat cookery learned in this class and being applied on the job

Handout 6: Evaluation of Short Course
## Scorecard for Main Dish Salads

<table>
<thead>
<tr>
<th>SALAD</th>
<th>APPROPRIATE UNDERLINER</th>
<th>FLAVOR &amp; AROMA</th>
<th>COLOR AND APPEARANCE</th>
<th>DRESSING</th>
<th>GARNISH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beef</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ham</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seafood</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Characteristics of a high quality meat salad:

(To be compiled by class and written here):
Variety meats include the internal organs such as heart, kidney, liver, brains, tripe (stomach of cattle), and sweet breads (thymus glands). Chitterlings, the small intestines of young pigs, are sometimes available. In some regions, the testicles of young lambs or calves may be eaten. Tongue also is considered a variety meat. A great delicacy of the Near East is the eye of the young roasted goat. It is always saved for the guest at the feast.

Variety meats are important in the diet because many of them are high in nutrients. But why do some population groups who do not realize their nutritive value, consider them to be such delicacies?

Kidneys from young animals may be broiled or pan fried (Table 8.5). Heart and kidney from older animals require moist heat cookery methods, however, because they are less tender cuts of meat. If heart is partially cooked by moist heat, it can be stuffed and then baked to complete its preparation. Tongue is often cured and smoked, but regardless of its treatment prior to purchase, it needs to be prepared by moist heat cookery. Liver from young animals becomes more acceptable when it is braised to aid in tenderizing it.

Would you say that the cooking of variety meats is based on the amount of connective tissue in the item?

Some variety meats have strong flavors which may be subdued with special treatment for wider appeal. Kidneys may be partially cooked in water which is discarded and then replaced with fresh water. This procedure minimizes the strong flavor of the kidney. Occasionally, liver and kidneys from young animals may be soaked in milk before they are sautéed or broiled to reduce their flavor a bit. Another technique to reduce the flavor of variety meats is to soak them in salted water or vinegar prior to cooking in fresh water.

Special cooking methods for variety meats are designed to reduce cooking time/flavor.

Blanching is a process used to treat some variety meats preliminary to their actual final preparation. For instance, sliced beef liver may be briefly immersed in boiling water and the stringy, connective tissue removed. Sweet breads and brains may be briefly heated in water and vinegar to alter the flavor and to bleach the white variety meats before they are freed of their membranes. Other meats may be dipped in boiling water to give them more firmness before they are cooked. Thus, blanching is really a means of pre-treating meats to prepare them for their final cooking method. The meats are partially cooked or parboiled by this process.

When meats are blanched they are fully cooked/parboiled.

They learn to like them and prize them because there is such limited availability of variety meats.

It is generally true.
Table 8.5. Timetable for Cooking Variety Meats

<table>
<thead>
<tr>
<th>Type</th>
<th>Broiled</th>
<th>Braised</th>
<th>Cooked in Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minutes</td>
<td>Minutes</td>
<td>Hours</td>
</tr>
<tr>
<td>LIVER:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beef:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-4 lb piece</td>
<td>20-25</td>
<td></td>
<td>2-2½</td>
</tr>
<tr>
<td>Sliced</td>
<td>8-10</td>
<td></td>
<td>1½-2</td>
</tr>
<tr>
<td>Veal (calf):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sliced</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pork:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole (3-3½ lb)</td>
<td>20-25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sliced</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lamb:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sliced</td>
<td>8-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KIDNEY:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beef</td>
<td></td>
<td></td>
<td>1-1½</td>
</tr>
<tr>
<td>Veal (calf):</td>
<td></td>
<td></td>
<td>3/4-1</td>
</tr>
<tr>
<td>Pork</td>
<td>10-12</td>
<td></td>
<td>3/4-1</td>
</tr>
<tr>
<td>Lamb</td>
<td>10-12</td>
<td></td>
<td>3/4-1</td>
</tr>
<tr>
<td>HEART:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beef:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole</td>
<td>3-4</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>Sliced</td>
<td>1½-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veal (calf):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole</td>
<td>2½-3</td>
<td>2½-3</td>
<td></td>
</tr>
<tr>
<td>Pork</td>
<td>2½-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lamb</td>
<td>2½-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TONGUE:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beef</td>
<td>3-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veal (calf):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pork</td>
<td>2-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lamb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRIPE:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beef</td>
<td>10-15+</td>
<td></td>
<td>1-1½</td>
</tr>
<tr>
<td>SWEETBREADS:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beef</td>
<td>10-15+</td>
<td>20-25</td>
<td>15-20</td>
</tr>
<tr>
<td>Veal (calf):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lamb</td>
<td>10-15+</td>
<td>20-25</td>
<td>15-20</td>
</tr>
<tr>
<td>BRAINS:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beef</td>
<td>10-15+</td>
<td>20-25</td>
<td>15-20</td>
</tr>
<tr>
<td>Veal (calf):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pork</td>
<td>10-15+</td>
<td>20-25</td>
<td>15-20</td>
</tr>
<tr>
<td>Lamb</td>
<td>10-15+</td>
<td>20-25</td>
<td>15-20</td>
</tr>
</tbody>
</table>

*By permission of the National Live Stock and Meat Board.
†On top of range or in a 300°F oven.
‡Time required after precooking in water.
**LIVER LOAF**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>25 Servings Wt. or Amt.</th>
<th>Measure</th>
<th>50 Servings Wt. or Amt.</th>
<th>Measure</th>
<th>100 Servings Wt. or Amt.</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liver, ground</td>
<td>4 lbs.</td>
<td>2 qts.</td>
<td>8 lbs.</td>
<td>4 qts.</td>
<td>16 lbs.</td>
<td>8 qts.</td>
</tr>
<tr>
<td>Parsley</td>
<td>1/2 tbsp.</td>
<td></td>
<td>3 tbsp.</td>
<td></td>
<td>6 tbsp.</td>
<td></td>
</tr>
<tr>
<td>(optional)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onion</td>
<td>1/2 tbsp.</td>
<td></td>
<td>3 tbsp.</td>
<td></td>
<td>6 tbsp.</td>
<td></td>
</tr>
<tr>
<td>Bread Crumbs</td>
<td>7 oz.</td>
<td>2 cups</td>
<td>14 oz.</td>
<td>1 qt.</td>
<td>1 lb. 12 oz.</td>
<td>2 qts.</td>
</tr>
<tr>
<td>Eggs</td>
<td>8 oz.</td>
<td>1 cup</td>
<td>1 lb.</td>
<td>2 cups</td>
<td>2 lbs.</td>
<td>1 qt.</td>
</tr>
<tr>
<td>Stock (broth)</td>
<td>8 oz.</td>
<td>1 cup</td>
<td>1 lb.</td>
<td>2 cups</td>
<td>2 lbs.</td>
<td>1 qt.</td>
</tr>
<tr>
<td>Milk</td>
<td>1 lb.</td>
<td>2 cups</td>
<td>2 lbs.</td>
<td>1 qt.</td>
<td>4 lbs.</td>
<td>2 qt.</td>
</tr>
<tr>
<td>Shortening</td>
<td>2 oz.</td>
<td>1/4 cup</td>
<td>4 oz.</td>
<td>1/2 cup</td>
<td>8 oz.</td>
<td>1 cup</td>
</tr>
<tr>
<td>Salt</td>
<td>2 tsp.</td>
<td></td>
<td></td>
<td></td>
<td>3 tbsp.</td>
<td></td>
</tr>
</tbody>
</table>

Procedure:
1. Finely grind liver, parsley and onions.
2. Add bread crumbs moistened in beaten eggs combined with liquid. Add melted fat and seasonings.
3. Blend mixture well.
4. Place in greased baking pans.
5. Bake in pan of hot water for 1 hour at 375°F.

Oklahoma State Dept. of Health
Nursing Home Project 9/63

**LIVER AND ONIONS**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>25 Servings Wt. or Amt.</th>
<th>Measure</th>
<th>50 Servings Wt. or Amt.</th>
<th>Measure</th>
<th>100 Servings Wt. or Amt.</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liver, sliced</td>
<td>4 lbs.</td>
<td>3/4 cup</td>
<td>8 lbs.</td>
<td>1 1/2 cups</td>
<td>16 lbs.</td>
<td>3 cups</td>
</tr>
<tr>
<td>Flour</td>
<td></td>
<td>3 1/2 tsp.</td>
<td></td>
<td>2 1/2 tsp.</td>
<td></td>
<td>5 tsp.</td>
</tr>
<tr>
<td>Salt</td>
<td></td>
<td>3/4 tsp.</td>
<td></td>
<td>1 1/2 tsp.</td>
<td></td>
<td>3 tsp.</td>
</tr>
<tr>
<td>Pepper</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hot fat</td>
<td>5 oz.</td>
<td>1/2 cup</td>
<td>10 oz.</td>
<td>1 1/2 cups</td>
<td>1 lb. + 4 oz.</td>
<td>2 1/2 cups</td>
</tr>
<tr>
<td>Onions, sliced</td>
<td>1 lb. + 8 oz.</td>
<td>2 tbsp</td>
<td>3 lbs.</td>
<td>4 oz.</td>
<td>6 lbs.</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>2-1/3 c.</td>
<td>1 qt. + 3/4 c.</td>
<td>2 qt. + 1 1/2 c.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Procedure:
1. Dredge sliced liver with a mixture of flour, salt and pepper.
2. Brown liver in hot fat. Place in roaster, cover with onions, water.
3. Cook until tender, approximately 1 1/2 hours at 350°F.

Note: If onion gravy is desired, pour off liquid and use in making gravy.

Oklahoma State Dept. of Health
Nursing Home Project 9/63
Evaluate against characteristics of a high quality product using a 5-point scale—5=most desirable, 1=least desirable.

<table>
<thead>
<tr>
<th>Product</th>
<th>Appearance</th>
<th>Texture</th>
<th>Tenderness</th>
<th>Flavor</th>
<th>General Acceptability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Characteristics of high quality liver:
(To be compiled by class and written here)
This is what I learned at this workshop:

This is how I'll use what I learned on my job:

Next Time, I hope you will:
KANSAS DEPARTMENT OF VOCATIONAL EDUCATION

FOOD SERVICE EMPLOYEE SHORT COURSE

MODULE III: VEGETABLES AND SALADS WITH PIZAZZ

Course length---18 hours: 3 hours per session for 6 weeks

Starting Date--

Participants--Food service employees from schools, nursing homes, hospitals and other institutions will be invited to attend. Some experience in quantity food production is desirable.

Learning Strategy--Presentation of the course will be by lecture, demonstrations, actual "hands-on" class activities, and audio-visual materials. Handouts will be distributed at most sessions.

Textbook--Food for Fifty, 6th ed.: West, Bessie Brooks; Shugart, Grace Severance; Wilson, Maxine Fay; John Wiley & Sons, 1979.

OBJECTIVES: To demonstrate proper techniques in quantity preparation of salads and vegetables including proper handling, storage and preparation of ingredients to retain color, flavor, texture, nutrients and "eye appeal". This will include using principles of sanitation, safety, and work simplification and proper use of large and hand equipment, standardized recipes and portion control.

COURSE OUTLINE:

Lesson one: Orientation & Cooking Methods
Introduction to course and class members
Variety of vegetables available
Basic Four Food Groups slides
Cooking methods used to prepare vegetables
Standardized recipes
Experiments in cooking time and use of acid and alkali on cooking vegetables

Lesson two: Vegetable Cookery
Microwave and stir-frying methods
Demonstration of use of steamer
Preparation of one cooked vegetable and one potato dish

Lesson three: Molded Salads and Garnishes
   Parts of a salad
   Preparation of molded salads
   Discussion of garnishes--Pizazz slides

Lesson four: Preparation of Fruit Salads
   Demonstration and use of pastry tube
   Preparation of fruit salads
   Accident Prevention and Equipment Safety
   Principles of work simplification

Lesson five: Preparation of Fresh Vegetable Salads
   Preparation of fresh vegetable salads
   Demonstration and use of hand and mechanical equipment for making salads
   Experiment in care of lettuce
   Preparation of salad dressings

Lesson six: Nutrition and Miscellaneous Salads
   Good nutrition--function of vitamins and minerals
   Preparation of miscellaneous salads (main dish salad)
   Starch salads--macaroni salad, hot potato salad
   Relish tray with herbed cottage cheese dip
   Recipe exchange
   Evaluation

EXPECTED OUTCOME: Participants will become more aware of their valuable and vital role on the health care team by providing nutritious and appealing meals to the residents/patients in their facilities as an aid to their well-being.
PURPOSE OF LESSON:
To demonstrate the effect of cooking time, acid, and alkali on various cooked vegetables and to discuss the preparation of vegetables and their contribution to the diet.

OBJECTIVES:
The participant will:

1. Understand purpose of course.
2. Discuss contributions of vegetables to the diet.
3. List at least 5 rules for vegetable cookery.
4. Describe at least 4 methods of cooking vegetables.
5. Describe at least 5 advantages of using standardized recipes.
6. Demonstrate the effect of cooking time, acid and alkali on various cooked vegetables.

SUPPLIES NEEDED:
Filmstrip projector and screen
Filmstrip "Food for Life: Vegetable and Fruit Group"
Registration forms
Name tags
Folders with Handouts
2-3 cans of green beans
Strainer
Measuring cups and spoons
Pans
Cream of tartar
Soda
Vinegar
Plastic glasses
White plates
Spoons
½ medium head red cabbage
8 medium carrots
1 bunch broccoli
8 medium onions
2-10 oz. packages fresh spinach

HANDOUTS:
1:1 Course Outline
1:2 Vegetable Cookery
1:3 Determining Quality
1:4 Methods of Cooking Vegetables
1:5 Recipe Form
1:6 Vegetables -- Effect Of Cooking Treatment
1:7 Observations on Vegetables (Scorecard)
1:8 Crossword Puzzle: Vegetables
Commercial Recipes and Folders
### LESSON CONTENT

#### I. General Orientation

**A. Presentation of name tags and get-acquainted activity**
1. Introduce faculty and students
2. Complete enrollment procedure

**B. Orientation to the course**
1. Purpose of the course—Introduction and overview
2. Handout 1:1 Outline of Course
3. Learn by doing, preparation and display
4. Learn some scientific principles of food preparation
5. Evaluate finished products using score cards
6. Importance of clean-up, sanitation and safety practices
7. Meeting place and times
8. Certificate of completion—grade if given

**C. Orientation to facility**
1. Building rules and policies
2. Location of restrooms and smoking areas

**D. Student handbook**
1. Dress code, personal conduct, food handling, sanitation and safety checklists
2. Procedure for tasting food—tasting spoon
3. Use of textbook and handouts
4. Organization of class into teams

### CLASS ACTIVITY AND EVALUATION

Play game for introducing participants to each other:
First person in group introduces him/herself by telling name, place of work, what he/she does at work and at least one interesting thing about him/herself. The second person introduces him/herself and then repeats first person's name and his/her name. The third person introduces him/herself and then repeats first two persons' names and his/her own. This continues until all have been introduced.

Ask students what they want to learn about vegetables, salads and garnishes. As much as possible, incorporate those requests into this module.

Explain that other employees will be using this kitchen and expect it to be clean and orderly.

Review handouts in student handbook

Assign participants into teams, according to number in class and class activities. Use color-coded folders or colored name tags. Review "Team Duties."
Lesson 1
Module III: Vegetables and Salads with Pizazz

LESSON CONTENT

E. Tour kitchen and work area
   1. Emphasize handwashing rules and locate handwashing sinks
   2. Review 3-sink method of ware-washing in student handbook
   3. Discuss sanitary procedures for washing and storing equipment and utensils
      a. Instructor will establish policy for returning utensils and ingredients to storage areas
   4. Note location and use of range top, ovens, steam jacketed kettle, steamer, etc.

II. Vegetables--Using Handout 1:2, discuss the following:
   A. Contributions of vegetables to the diet
   B. Why do we cook vegetables?
   C. Part of plant eaten as a vegetable
   D. Purchasing of vegetables
      1. Can cutting
      2. Amounts to purchase
   E. Storage of vegetables
   F. Categories of vegetables by color
   G. Conserving flavor, texture and nutrients in cooking
   H. General rules for vegetable cookery

CLASS ACTIVITY AND EVALUATION

Participants demonstrate proper handwashing procedures.
Participants demonstrate filling of sinks, measuring sanitizer, etc.
Participants demonstrate method of cleaning and sanitizing work surfaces, washing and storing utensils.

Filmstrip--"Food for Life: Vegetable and Fruit Group"

Demonstrate can cutting using 2-3 brands of canned green beans. Use Handout 1:3 to record results and determine best buy.
Class discussion of amount needed to purchase for 50 servings of vegetables in Food for Fifty, pp. 18-21, 65-67.
### III. Methods of cooking vegetables

A. Discuss Handout 1:4—Stress preparation in small batches on a staggered schedule

B. Discuss *Food for Fifty*, pp. 496-503

### IV. Seasoning and serving vegetables

A. Discuss Handout 1:2

B. Examine recipes in *Food for Fifty*, pp. 532-537

### V. Advantages of Standardized Recipes

A. Increased customer satisfaction

B. Consistent quality level

C. Predictable yields

D. Known recipe costs and portion costs

E. Predictable amounts to purchase

F. Reduced over- or under-production

G. Constant nutritional values

### VI. Discuss recipe exchange for last lesson in this series—bring a favorite recipe for at least one cooked vegetable and one salad to exchange. Should be typed or in legible pen on Handout 1:5 and adjusted for 50 servings.

Class discussion of ways participants have used vegetables in their facilities.
## LESSON CONTENT

### VII. Group experiments on effect of cooking time, acid and alkali on various cooked vegetables.
Discuss results.

### VIII. Plan foods to be prepared next week.

Prepare market order.

## CLASS ACTIVITY AND EVALUATION

Divide class into 5 groups of 3 participants each.
Assign each group one of the following:
- Group 1 -- red cabbage
- Group 2 -- carrots
- Group 3 -- broccoli
- Group 4 -- onions
- Group 5 -- spinach

Follow procedures on Handout 1:6.
Group evaluation using observation sheet.

Each group select a recipe from Food for Fifty for one cooked vegetable and one potato dish that they have not prepared before. (pp. 504-550).
Plan list of supplies needed for next week.
VEGETABLE COOKERY

I. Contributions of vegetables to the diet
   A. Vitamins A, B and C and many minerals
   B. Cellulose or fiber
   C. Color, interest and unusual texture to menu

II. Why do we cook vegetables?
   A. To alter the flavor
   B. To soften the product
   C. To improve their texture
   D. To increase the product's digestibility
   E. To make them more appetizing
   F. To add variety

III. Part of plant eaten as a vegetable
   A. Leaves—Brussels sprouts, cabbage, lettuce, parsley, spinach, greens (mustard, spinach, etc.). Mostly water, but high vitamin and mineral content.
   B. Seeds—beans, peas, corn—contain protein, sugar and starch.
   C. Roots—beets, carrots, sweet potatoes, radishes, turnips—contain starch and sugar.
   D. Tubers—white potatoes—contain starch and sugar.
   E. Bulbs—garlic, onions—contain starch and sugar.
   F. Flowers—broccoli, cauliflower—contain starch and vitamins.
   G. Fruits—cucumbers, eggplant, okra, peppers, pumpkin, squash, tomatoes—contain starch and vitamins and minerals.
   H. Stems and shoots—asparagus, celery, chives—mainly cellulose and water.
IV. Purchasing vegetables--forms available

A. Fresh vegetables
   1. Buy in season for best nutrition and flavor
   2. Labor cost may be high

B. Frozen vegetables
   1. Save preparation time and labor--about 50% cooked
   2. Available year around
   3. Yield standard finished product
   4. Purchases may depend on vendor deliveries and freezer space available

C. Canned vegetables
   1. Most convenient and longer storage life
   2. Least attractive and least nutritive
   3. Less preparation time as only need to be reheated

D. Dried or dehydrated
   1. Most of water has been removed
   2. Convenient to store and long shelf life

V. Storage of vegetables

A. Canned vegetables and root vegetables stored in cool dry room at 50-70°F with good ventilation

B. Fresh vegetables keep best at 35-45°F for 2-5 days.

C. Frozen vegetables should be kept below 0°F.

VI. Categories of vegetables by color

A. Red: beets, red cabbage, red beans
   1. Cooking in acid intensifies red color. Add small amount of vinegar, wine or lemon juice to maintain color
   2. Some hard water or alkaline turns vegetables purple, blue or green
   3. Cook in a covered pan to keep acid from evaporating
   4. Cook beets unpeeled to keep red pigment in vegetable

B. Green: green beans, lima beans, broccoli, asparagus, peas, artichokes, okra, brussels sprouts, spinach, parsley, green peppers, greens (mustard, turnip, etc.)
   1. Keep colors best in slightly alkaline solution
   2. Cook uncovered to allow acids to evaporate
   3. Do not add soda to make liquid alkaline as it destroys some nutrients and makes vegetables mushy and sometimes adds a bitter taste
   4. Overcooking turns green vegetables from bright to olive green
C. Yellow: carrots, rutabaga, winter squash, yams, sweet potatoes, corn, tomatoes
   1. Not affected by either acid or alkaline solutions
   2. Color may be lost from overcooking

D. White: potatoes, green cabbage, turnips, celery, summer squash, cauliflower, onions, mushrooms, cucumbers, zucchini
   1. Turn gray when overcooked and develop an undesirable taste
   2. May turn gray or yellow in alkaline solution
   3. Small amount of lemon juice or cover when cooking will add acid but too much makes vegetables tough

VII. Conserving flavor, texture and nutrients in cooking

A. Flavor
   1. Overcooking loses flavor into air or liquid
   2. Members of cabbage family (cabbage, turnips, cauliflower, brussels sprouts, broccoli) develop a strong acrid taste and unpleasant smell if overcooked. Cook quickly with the lid off to allow strong flavors to evaporate.

B. Texture
   1. Good texture is firm to the bite yet tender
   2. Cook vegetables as close to serving time as possible and in as small quantities as possible

C. Nutrients
   1. Some are destroyed by alkaline solutions, heat (either high heat or prolonged cooking), evaporate easily or are water soluble
   2. Do not overcook. This cuts all kinds of nutrient loss
   3. Cook as close to serving time as possible. Prevent loss through exposure to air
   4. Use no more liquid than necessary
   5. In fresh vegetables, peel away as little flesh as possible, as many nutrients are near the skin
   6. The larger the cut surface, the greater the nutrient loss
   7. When nutrient conflicts with flavor, appearance or production needs, the choice will be made according to circumstances and clientele being served.
GENERAL RULES FOR VEGETABLE COOKERY

1. Clean raw vegetables thoroughly before cooking.
2. Cut vegetables evenly for even cooking.
3. Use as little liquid as possible. In boiling liquid should be enough so that all pieces cook evenly, but no more.
4. Avoid acid solutions for green vegetables and alkaline solutions for red ones.
5. Cook vegetables in as small amounts as possible.
6. Cook as close to serving time as possible.
7. Do not overcook.

SOME HERBS FOR VEGETABLES

BASIL--mixed vegetables, lima beans
BAY LEAF--stewed tomatoes
CARAWAY SEEDS--red and green cabbage, sauerkraut
CELERY SEED--potato salad, coleslaw
CHIVES--corn, potatoes, tomatoes, waxed beans
CLOVES--stud an onion with whole cloves. Cook with red cabbage
CURRY--rice, green beans, curried fruit
DILL WEED OR SEED--potatoes, peas and carrots, green beans
MACE OR NUTMEG--spinach
MINT--peas
MONOSODIUM GLUTAMATE OR "ACCENT"--brings out natural flavors
OREGANO--green beans with tomatoes and onion
ROSEMARY--potatoes, cauliflower, turnips (takes canned taste out of canned vegetables)
WHITE PEPPER--does not discolor vegetables
SAGE--lima beans, eggplant
SESAME SEED--toasted, sprinkle on buttered vegetables
TARRAGON--carrots
THYME--brightens flavor of vegetables
## Determining Quality

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METHODS OF COOKING VEGETABLES

I. Boiling

A. Cooking a vegetable submerged in a liquid at or just below the boiling point is the most universal method of vegetable cookery.

B. Cover the pot or not according to color or strong taste.

C. Put vegetable in the pot with hot liquid just to cover, add salt, herbs or spices to flavor and boil it gently to correct doneness, being careful not to overcook.

D. Drain vegetable as soon as cooking is complete or it will continue to cook.

E. Suitable vegetables for boiling are: artichokes, asparagus, beets, broccoli, brussels sprouts, cabbage, carrots, cauliflower, corn, green beans, onions, peas, potatoes, rutabagas, summer squash, tomatoes, turnips and zucchini.

F. Dried vegetables should be soaked overnight and simmered, not boiled, until they are done throughout, but firm enough to hold their shape.

II. Steaming

A. Place cleaned and prepared vegetables into steamer cabinets that cook them at pressures of 5 to 15 psi (pounds per square inch).

B. Follow timing charts to avoid overcooking. See time table with equipment or chart in Food for Fifty, pp. 501-503.

C. Suitable vegetables for steaming are: artichokes, asparagus, broccoli, brussels sprouts, cabbage, carrots, cauliflower, green beans, lima beans, onions, peas, potatoes, rutabagas, summer squash, tomatoes, turnips and zucchini.

III. Braising

A. Cooking vegetables slowly, covered, in a small amount of liquid. Retains juices. Often done in oven.

B. Suitable vegetables are: leeks, mushrooms, potatoes, summer squash and zucchini.
IV. Deep frying
A. Cut even pieces for cooking.
B. Partial-cook hard vegetables.
C. Bread carefully for a complete, even coat with no loose crumbs. Season before breading. Do not season uncoated foods.
D. Be sure the fat is at the right temperature ($325-350^\circ$ F.) before immersing the food. If it is too high, the food may be over-browned on the outside and undercooked on the inside.
E. Do not overload the fryer. Fill baskets only one-half to two-thirds full. Partially filled baskets allow you to shake the food occasionally to keep the pieces from sticking together.
F. When food is golden brown, lift the basket out of fat and drain a minute or so over the kettle. Drain further on absorbent material if necessary.
G. Suitable vegetables are: cauliflower, eggplant, okra, onions, parsley and potatoes.

V. Pan-frying
A. Brown vegetables in butter or bacon drippings in a pan or skillet.
B. Suitable vegetables are: potatoes, onions and mushrooms.

VI. Baking
A. Baking in oven retains more vitamins and minerals than many other methods.
B. Suitable vegetables are: squash, potatoes, eggplant and tomatoes.

VII. Broiling
A. Baked in oven first, with a minute or two under broiler at end to glaze them.
B. Suitable vegetables are: eggplant, mushrooms, onions and tomatoes.

VIII. Sauteing
A. Cook vegetable to three-fourths doneness, then finish cooking in a little hot fat in a pan.
B. Suitable vegetables are: asparagus, broccoli, carrots, cauliflower, green beans, mushrooms, onions, potatoes, peas, brussels sprouts and some kinds of squash.
IX. Stir frying

A. Rapidly toss or stir thinly cut vegetables in a very hot wok or electric skillet using a small amount of oil 2 or 3 minutes.

B. Suitable vegetables are: most ordinary fresh vegetables, including oriental vegetables and bean sprouts.

X. Microwave

A. Cook in batches according to manufacturer's directions as needed.

B. Suitable for high moisture vegetables and heating small quantities of precooked foods.
### Recipe

**Yield:**

**Number of Portions:** 1:5

**Size of Portion:**

<table>
<thead>
<tr>
<th>INGREDIENTS</th>
<th>AMOUNT</th>
<th>METHOD</th>
</tr>
</thead>
</table>

250
VEGETABLES—EFFECT OF COOKING TREATMENT

Group 1—Red cabbage
Group 2—Carrots
Group 3—Broccoli
Group 4—Onions
Group 5—Spinach

PROCEDURE

1. Put 1 quart cold water in a 2 quart saucepan and bring to a boil; start 1 pan for each treatment.

2. Clean vegetables.

3. Divide carrots, red cabbage, onions and spinach into four equal portions. Divide the broccoli into five equal portions.

4. For each treatment listed below, cook one portion of vegetable; add vegetables to boiling water.

5. It may be necessary to add more hot water if substantial amounts of water are lost by evaporation. Do not let the vegetable boil dry.

6. At the end of the cooking period, drain the vegetable by placing it in a strainer. Collect part of the cooking liquid in a glass. Put the cooked vegetable on a white plate for evaluation.

7. Evaluation and discussions should include both the cooked vegetable and the cooking liquid.

8. Record observations in the tables on the following pages.

COOKING TREATMENTS*

1. Boil for 15 minutes. Count time after water returns to a boil.

2. Boil for 30 minutes. Count time after water returns to a boil.

3. Add ½ teaspoon baking soda after adding the water. Boil for 15 minutes after water returns to a boil.

4. Add 1 teaspoon cream of tartar after adding the water. Boil for 15 minutes after water returns to a boil.

5. For the fifth sample of broccoli, place the lid on the saucepan after the water has been added; boil for 30 minutes after water returns to a boil.

*Cover saucepan for cooking carrots, use uncovered saucepan for all other samples.
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<th>Vegetable</th>
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<th>Color</th>
<th>Juice</th>
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<th>Texture</th>
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<td>(4) acid</td>
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<td>Onions</td>
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<td>Carrots</td>
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### Observations on Vegetables

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<th>Treatment Number</th>
<th>Juice</th>
<th>Vegetable</th>
<th>Texture</th>
<th>Flavor</th>
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<td>(3) soda uncovered</td>
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<td>(4) acid uncovered</td>
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<td></td>
<td>(5) 30 minutes covered</td>
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<tr>
<td>Spinach</td>
<td>(1) 15 minutes</td>
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<td>(2) 30 minutes</td>
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<td>(4) acid</td>
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</table>
ACROSS
1. The green coloring substance of plants is ____.
5. This green leafy vegetable looks like small cabbages. (2 words)
10. This leafy green vegetable is used to make cole slaw.
13. The opposite of “down” is ____.
15. Artichoke, broccoli, and cauliflower are classified as ____.
18. Dried peas and beans are known as ____.
20. When you eat lettuce or cabbage you are eating the ____ of a plant.
23. When you eat asparagus or celery you are eating the ____ of a plant.
25. Most vegetables grow on ____.
28. A 227-g (8-oz) can will contain ____ cup.
29. Green bell is a popular variety of this vegetable, which is classified as a fruit.
30. The abbreviation of “pint” is ____.
31. This is a popular stem, often eaten raw as a snack.
32. This long green pod is classified as a fruit.
34. This light green stem vegetable is usually cooked before eating.
37. This elongated orange root vegetable is often eaten raw as a snack.
40. Popular varieties of this vegetable include Spanish, Bermuda, Globe yellow, and white.
41. This favorite vegetable is classified as a fruit; it is usually bright red, but may also be yellow.
42. This green vegetable is classified as a flower and is often served with a cheese sauce.
44. The most popular tuber is the ____.
45. Tubers and some root vegetables may be stored in a cool, dark, ____ place.
46. This is the yellow substance in some vegetables that your body converts into vitamin A.
47. Most fresh vegetables should be stored in a ____.
48. This is a flower-type vegetable; usually its petals are peeled off to be eaten.
49. This strongly flavored bulb vegetable often is used to season dips or sour cream.
50. The most frequently used method of cooking vegetables is ____.
DOWN:

1. This white vegetable is classified as a flower.
2. Canned vegetables may be stored at _____ temperature.
3. Most vegetables are _____ in calories.
4. This is a cylindrical shaped bulb, similar in flavor to an onion.
5. These small brown bulbs resemble onions.
6. This small, red and white root vegetable is usually eaten raw.
7. To preserve nutrients, most vegetables should be cooked in a _____ amount of water.
8. This vegetable has small bulbs, divided into sections called cloves; which are very strong in flavor.
9. Beans, peas, and corn are classified as _____.
10. This green leafy vegetable was made popular by Popeye the Sailor.
11. This green vegetable grows in pods and is classified as a seed.
12. _____ is an orange root vegetable, sometimes called a yam. (2 words)
13. Popular types of this vegetable, classified as a seed, include green and mature.
14. This large oval fruit-type vegetable is covered with a purple skin.
15. A large body of water is a _____.
16. The number of servings from the Vegetable-Fruit Group that you should have daily is _____.
17. The opposite of “bottom” is _____.
18. Classified as fruits, these green and white vegetables are often made into pickles.
19. A deep red, round root vegetable is the _____.
20. Parsnips, turnips, and rutabaga are all classified as _____.
21. Leafy green and deep yellow vegetables are excellent sources of vitamin _____.
22. Corn on the cob is usually cooked in a large _____ of boiling water.
23. _____ is the opposite of “stop.”
24. This popular vegetable consists of yellow seeds that grow on cobs.
25. In a garden, most vegetables are planted in a _____.
26. Butter is a common seasoning to put _____ vegetables.
27. Leafy green vegetables are good sources of this mineral.
LESSON 2
NOTES TO THE INSTRUCTOR

PURPOSE OF LESSON:
To be able to prepare cooked vegetables preserving color, form and quality and retaining as much nutritive value as possible.

OBJECTIVES:
The participant will:

1. Demonstrate the ability to operate a steamer.
2. Demonstrate the ability to prepare a cooked vegetable.
3. Demonstrate the ability to prepare a potato dish.
4. Be able to recognize a good quality vegetable and potato product using scorecard.

SUPPLIES NEEDED:
Ingredients for cooked vegetables and potatoes using student lists.
Brochures for steamers

HANDOUTS:
2:1 Steamers
2:2 Scorecard for Cooked Vegetables
<table>
<thead>
<tr>
<th>LESSON CONTENT</th>
<th>CLASS ACTIVITY AND EVALUATION</th>
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</thead>
<tbody>
<tr>
<td><strong>I. Compartment Steamers</strong></td>
<td>Demonstration of operation of steamer</td>
</tr>
<tr>
<td>A. Discuss Handout 2:1</td>
<td>Emphasize release steam slowly and stand back to avoid burns</td>
</tr>
<tr>
<td>B. Types of steamers available</td>
<td>In small groups prepare:</td>
</tr>
<tr>
<td>1. High pressure - faster cooking time</td>
<td>Assigned cooked vegetable</td>
</tr>
<tr>
<td>2. Convection - can open door easier</td>
<td>Assigned potato dish</td>
</tr>
<tr>
<td>C. Display of brochures of steamers available</td>
<td>Score cooked vegetables using scorecard</td>
</tr>
<tr>
<td>1. Market Forge</td>
<td>Score potato dish using scorecard</td>
</tr>
<tr>
<td>2. Cleveland</td>
<td>Choose a molded salad using FF pp. 415-422</td>
</tr>
<tr>
<td>3. Hobart</td>
<td>Plan a list of supplies needed for next week for teacher</td>
</tr>
<tr>
<td>4. Others</td>
<td>Recipe exchange</td>
</tr>
<tr>
<td><strong>II. Preparation of cooked vegetables</strong></td>
<td></td>
</tr>
<tr>
<td>A. Discuss cooking times of vegetables FF pp. 501-503</td>
<td></td>
</tr>
<tr>
<td>B. Discuss seasoning and serving vegetables FF pp. 532-537</td>
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<tr>
<td><strong>III. Discuss evaluation of cooked vegetable and potato dish.</strong></td>
<td></td>
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<tr>
<td>Emphasize &quot;What is a good quality vegetable?&quot;</td>
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<tr>
<td><strong>IV. Plan for next session on molded salads</strong></td>
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</table>
COMPARTMENT STEAMERS

A compartment steamer has sealed chambers that cook rapidly. Cool air is exhausted from the chambers as steam enters. They are made with 1, 2, or 3 chambers and are constructed with shelves available for 2, 4, or 6 standard-size steamtable pans 2½" deep. Pans that are 4 to 6 inches deep may be used if the shelves are removed.

Most steamers operate on 5-lb. to 6-lb. pressure because of the gaskets that seal the chambers. There are self-contained models generating their own steam, but most operate on remote steam supply.

One model operates on 1-lb. steam pressure and other models operate safely on 15 lbs., which is maximum for low pressure steam. These latter models are very effective for heating or cooking frozen foods. Steamers have several key factors that are critical for its proper functioning.

TO FUNCTION PROPERLY

- Steam must be reduced to the correct pressure by steam trap.
- Thermal valve must be working. It expels cold air from chamber.
- No excessive condensation should be coming from the steam line.
- After food is put into cooker, pressure should not take more than 3 minutes to return to normal.

MALFUNCTIONS

- Steam traps are not of proper size, and they are not in working condition to provide the correct pressure of 5 to 6 lbs.
- Thermal valve is not working. Bellows may be ruptured and if so, a thermostatic cage-type element may be used. If this element is used, the seat of the old valve must be removed.
- Threads on hand wheel (used for tightening lid) get dry and stick. If so, use graphite grease.

- If steam is leaking past the door gasket, a new gasket may be needed.
Excess water should be expelled from the chamber. If there is excess water, a steam trap should be installed in the steam line coming into the pressure cooker, which will release the water.

If more than 3 minutes is required for pressure to return to normal after food is put into a compartment, either the thermal valve is not expelling the cold air or not enough steam is getting through the reducer valve or the steam line is too small.

TO OPERATE A PRESSURE COOKER

- Close door and secure latch to hold door, then tighten wheel.
- Pull lever gradually to release steam into chamber. A spewing sound emits as cold air leaves chamber through the thermal valve.
- To open chamber, pull down the steam lever gradually to release steam. A rapid pull on lever may cause food to be blown from pan. Unscrew wheel and flip back latch to open door. Step back so escaping steam will not hit your face because severe burns may result.

TO CLEAN COOKER

- Remove shelving from chamber when cold.
- Wash chamber and shelving with a warm detergent solution.
- Replace shelving in chamber.
- Always leave compartment door ajar when not in use.
- Wash and dry its exterior.
- Clean daily.

Cooking cauliflower in pressure cooker.
**SCORECARD FOR COOKED VEGETABLES**

Score product as follows:

- **Very good** .... 4
- **Good** .......... 3
- **Fair** .......... 2
- **Poor** .......... 1

### Exterior Appearance

**Good Characteristics:**
- Regular, intact pieces
- Good color
- Cut edges remain distinct
- Moist

**Poor Characteristics:**
- Irregular, broken pieces
- Dull or off color
- Shriveled
- Dry

### Interior Appearance

**Good Characteristics:**
- Tender, yet slightly firm to bite
- Slightly crisp

**Poor Characteristics:**
- Mushy
- Hard, woody

### Palatability

**Good Characteristics:**
- Good flavor
- Well seasoned
- Hot
- Attractive

**Poor Characteristics:**
- Strong flavor, burned
- Over or no seasoning
- Semi-cool or cool
- Carelessly served

<table>
<thead>
<tr>
<th>Vegetable</th>
<th>Exterior Appearance</th>
<th>Interior Appearance</th>
<th>Palatability</th>
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</thead>
<tbody>
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2:2
PURPOSE OF LESSON:
To be able to prepare molded salads that will add attractiveness and nutrition to the menu.

OBJECTIVES:
The participant will:
1. Prepare a good quality molded salad.
2. List the four basic parts of a salad.
3. List three characteristics of a good garnish.
4. Demonstrate ability to use a pastry tube.
5. Evaluate molded salad using scorecard.

SUPPLIES NEEDED:
- Slide projector, screen and tape recorder
- "Pizazz"
- 5 pastry tubes
- Ingredients for salads using student lists

HANDOUTS:
3:1 Introduction to Salads
3:2 Preparing Molded Salads
3:3 Garnishes
3:4 Scorecard for Molded Gelatin Salads
# Lesson 3
**Module III: Vegetables and Salads with Pizazz**

## Lesson Content

<table>
<thead>
<tr>
<th>I. Introduction to Salads - Handout 3:1</th>
</tr>
</thead>
<tbody>
<tr>
<td>II. Molded gelatin salads</td>
</tr>
<tr>
<td>A. Gelatin comes from the cartilage, bones and skins of animals</td>
</tr>
<tr>
<td>B. Plain gelatin has little value as food</td>
</tr>
<tr>
<td>C. Gelatin salads are an attractive means of adding fruits and vegetables to diet</td>
</tr>
<tr>
<td>D. Gelatin salads may be prepared ahead of time</td>
</tr>
<tr>
<td>E. Available in 2 forms:</td>
</tr>
<tr>
<td>1. Plain - must be softened in cold water before adding hot liquids</td>
</tr>
<tr>
<td>2. Flavored (such as Jello brand) - can be added immediately to a hot liquid</td>
</tr>
<tr>
<td>F. Discuss Handout 3:1 - Preparing Molded Salads</td>
</tr>
<tr>
<td>III. Garnishes</td>
</tr>
<tr>
<td>A. Should be simple</td>
</tr>
<tr>
<td>B. Add contrast in shape, color, crispness or flavor to the food it accompanies</td>
</tr>
<tr>
<td>C. Should be edible</td>
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<tr>
<td>D. Discuss Handout 3:2 - Garnishes</td>
</tr>
<tr>
<td>IV. Demonstration of using pastry tube</td>
</tr>
<tr>
<td>V. Discuss evaluation of molded salads using scorecard</td>
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</tbody>
</table>

## Class Activity and Evaluation

- In small groups prepare a good quality gelatin salad using suggestions on Handout 3:1
- View slides "Pizazz" on garnishes
- Brainstorm various garnishes to use with salads using ideas on garnishes in FF pp. 590-591
- Practice using pastry tubes
- Score molded salads using scorecard
# Lesson 3: Module III: Vegetables and Salads with Pizazz

## Lesson Content

### VI. Plan for next session on fruit salads

A. Assign each group one can of fruit to prepare various salads:
   1. Peach halves
   2. Pear halves
   3. Pineapple rings
   4. Orange and grapefruit sections
   5. Applesauce and apple rings

## Class Activity and Evaluation

Plan list of supplies needed for next week for teacher
Plan ideas for salads using ideas in FF pp. 402-404
INTRODUCTION TO SALADS

We will discuss mainly salads which are used as an accompaniment to the main course. Other salads include appetizers, main course salads and dessert salads.

Contribution of salads to the diet are:

1. Contribute many vitamins and minerals to the diet.
2. Raw salads supply fiber to the diet.
3. Salads provide interesting color and textures to the menu.
4. It is a way to add a variety of fruits and vegetables to the diet.

Some characteristics of a good salad include:

1. Fresh and well-shaped ingredients.
2. Variety of textures.
3. Cooked fruits and vegetables should be ripe but firm.
4. Compatible ingredients.
5. Garnish for eye appeal.
6. Good proportion among ingredients.
7. The salad dressing should be more tart than the salad.

Salads have four basic parts:

1. The base or underliner refers to the foundation of the salad. Some good underliners are leaf lettuce, romaine lettuce or bibb lettuce. The frilly edge should be placed at the "top" of the plate and should not extend over the edge.

2. The body refers to the main ingredients of the salad. The ingredients should be appropriate for the use of the salad. Any combination of crisp, flavorful ingredients may be used.

3. The garnish for a salad is anything used to make the salad more attractive. Garnishes give variety in form, color and texture. They need to be suited to the other ingredients and yet stand out also. They can be an ingredient already used in the salad or a different ingredient.

4. The dressing that accompanies the salad provides seasoning. It should enhance the flavor of the salad.
PREPARING MOLDED SALADS

1. Gelatin means the setting or stiffening of a gelatin solution. Gel formation does not occur at a fixed point, but is a gradual process.

2. Buy good quality gelatin. It will set at a higher temperature and form a firmer gel which stands up better for a longer time at room temperature than one of poor quality.

3. The way gelatin is prepared and chilled affects the final product. The following points may assure success:
   a. Soak plain gelatin and gelatin mixtures in a small amount of cold water. Soaking gelatin in cold water will cause it to swell (become hydrated). Even though directions on the packages of most gelatin mixtures omit the soaking in cold water, a better solution results from preliminary soaking in part of the total required cold liquid.
   b. Add only enough hot water to completely dissolve gelatin. A rubbery layer will be formed on the bottom of the product if the gelatin is not completely dissolved.
   c. Do not boil gelatin, as it will become tough.
   d. Add the remaining liquid in a cold state as it takes less time to cool the solution and volatile flavor substances will not be lost.
   e. It is recommended that the solution remain at a cool room temperature before putting into the refrigerator. It will hold up better when served if cooled at room temperature. If gelatin is cooled too quickly, the firmness of the gel may be weak.

4. When a gelatin solution is whipped, more gelatin is required to produce a firm sponge. Whipping increases the volume and decreases the concentration of gelatin mixtures.

5. Cook frozen or fresh pineapple before using in a gelatin salad. Uncooked pineapple contains a protein-digesting enzyme, bromelin, which destroys the gelling power of gelatin. Cooking destroys this enzyme.

6. When milk is used for the liquid in making gelatin, as in Spanish Cream, a firmer gel is produced.

7. Use the correct amount of sugar in gelatin mixtures. A medium amount of sugar increases the stiffness of the gel, but a large amount retards gel formation and weakens it.

8. If a sweetened flavored gelatin such as Jello is used:
   a. ½ fruit syrup sweetened and ½ water may be used.
   b. If all fruit juice is used from canned fruit, the amount of sweetened gelatin should be increased by ¼.
9. Add moderate amount of chopped vegetables or fruits to gelatin. Large amounts of chopped foods will cut and weaken the gel.

10. More gelatin is needed when acids such as lemon juice or tomato juice are included in the salad. Acid weakens gel structure.

11. Fruits and vegetable particles in gelatin salads should be fairly uniform in size and identifiable.

12. Prepare the gelatin and let it set until it is the consistency of unbeaten egg whites before adding other ingredients. If the gelatin mixture is slightly thickened, foods will mix evenly through the gelatin, rather than sink to the bottom or rise to the top.

13. Some fruits "layer" themselves in a gelatin; usually canned fruits sink, and fresh and frozen ones float. Perhaps the sugar used in canned fruits gives the added weight.

14. To mold large pieces of fruit in a definite pattern, arrange each layer of fruit in a gelatin that has been chilled to the consistency of unbeaten egg whites and allow it to set before adding the next layer. Each part of the molded salad will stay separated and be layered if the gelatin is allowed to partially set between the addition of layers of fruit.

15. Fruits and vegetables must be drained, and the liquid included in the total liquid to avoid a soft gelatin.

16. In large quantities, gelatin must be stirred longer than for household size recipes.

17. The larger the volume of gelatin, the longer it takes to set.

18. Freezing breaks the gelatin structure.

19. For quicker setting, chill fruits or vegetables to be used before combining with gelatin.

20. The proper size of pan should be used so that the product will be of desired thickness. If the salad is too thin, it is harder to serve, takes up more space in the refrigerator and is less attractive.

21. Gelatin products should be prepared the day before in order to give the product time to set.

22. Unmold salads neatly as follows:
   a. Rub salad oil or mayonnaise or spray a food release in the mold before pouring the gelatin mixture into the mold. The gelled mixture will slide out easily without dipping in water. OR
   b. Run a knife around the upper edge and quickly immerse the mold just to the top in lukewarm water. Shake the mold.
GARNISHES

What makes the difference between plain food and something really special? It may be nothing more than a slice of lemon or a sprig of parsley, or perhaps a dash of nutmeg or cinnamon. The finishing touches placed on or around food are called garnishes. Garnishes add a touch of color or flavor to the food.

Some general suggestions for using garnishes are the following:

1. Use garnishes that can be eaten. However, little figures, flags or flowers may be used for special occasions.
2. A garnish should improve the appearance of the food with which it is served, but should not overpower it.
3. Balance the placement of garnishes on the platter or use the garnish in several spots. Odd numbers are usually more pleasing. For example, three lemon slices on a platter of fish are more interesting than four.
4. Experiment with garnishes, considering color, size, and texture. How would it look to use sliced beets on a plate of baked salmon? Or a maraschino cherry on a strawberry dessert? There should be a contrast between the garnish and the food.
5. Colorful, natural foods can be used to give very pleasing effects. Examples are paprika, pimento, lemon slices, fresh green onions, and stuffed olives.
6. Avoid using artificial colors. Blue and purple are not considered very appetizing.
7. Use fresh garnishes of high quality. There is nothing attractive about wilted parsley or dried lemon wedges.
8. Avoid garnishes with liquid sauces that run into the foods they accompany.
9. Try to keep the temperature of the garnish near the temperature of the food, or "protect" the garnish to keep it at the correct temperature. For example, placing cranberry jelly on a candied apple ring or mint jelly on an orange slice keeps the jelly from melting on a hot plate.
10. Avoid toothpicks in garnishes unless they can be seen easily.
11. Garnishes can be prepared ahead of time and placed in a refrigerator for use just before the main food item is to be served.
The following illustrations show common garnishes and how to prepare them.

**RADISH ROSES:**
Wash radishes and cut off the root, but leave about an inch of the stem. Hold the radish, stem down. Use a sharp knife to make overlapping cuts down and into the sides of the radish. Do not cut completely through the skin, but just enough to make the red skin stand away from the center of the radish. Place in cold water to make the "petals" open and remain crisp.

**RADISH ACCORDIONS:**
Remove the root and stem. Hold the radish lengthwise as shown. Using a sharp knife, make thin slices in the radish from the root end to the stem end, being careful to not cut completely through the radish. Place in cold water to force open.

**CELERY FANS:**
Cut celery into 2 1/2 inch pieces. Make short cuts, close together in one end. The other end may be cut in the same manner or left as it is. Place in cold water to make the celery curl. Green onion stems can be thinly cut in the same manner and will fan out in cold water.

**CARROT CURLS:**
After peeling a large, thick carrot, cut very thin slices lengthwise with the peeler. Wrap each slice around your finger and secure with a toothpick. Place in cold water until crisp. Remove toothpick before serving.

Very thin vertical carrot slices can be used as a base or nest for cottage cheese or other food instead of a lettuce leaf.
SCORED CUCUMBER:

After washing cucumber, score it by running the prongs of a fork lengthwise along all sides. Slice as desired.

CITRUS CUPS:

Cut in half with plain or saw-toothed edges. Remove pulp. Fill with gelatin salad, coleslaw, mixed fruit salad, cranberry sauce, or crushed pineapple.

TOMATO CUPS:

After slicing off top of tomato, hollow out a small portion. Mashed potatoes, or bread crumbs can be used to fill the depression, then warm in the oven along with the meal.

MELON BASKET:

Slice a watermelon lengthwise and hollow out. A sawtooth edge adds to appearance. Using a melon baller, make balls of hollowed-out watermelon, cantaloupe, and honeydew melon. Put all the balls into the melon "boat." Scoops of sherbet can also be added for extra interest.

In choosing garnishes, keep in mind the taste combination of the garnish and the food and try to visualize the colors together. Anyone can "sling hash," but a little extra care can turn an ordinary plate of food into a work of art.
SCORECARD FOR MOLDED GELATIN SALADS

Score product as follows:

- Very good: 4
- Good: 3
- Fair: 2
- Poor: 1

### Appearance

**Good Characteristics:**
- Attractive
- Added ingredients evenly distributed
- Clear-cut edges
- Pleasing color harmony

**Poor Characteristics:**
- Floaters and/or sinkers
- Uneven gelatin
- Layer of plain gelatin at bottom of whips

### Consistency

**Good Characteristics:**
- Firm, but not rigid
- Delicate texture

**Poor Characteristics:**
- Unhardened mixture or soft gelatin
- Tough or rubbery
- Tough layer of gelatin on bottom

### Flavor

**Good Characteristics:**
- Characteristic of ingredients used

**Poor Characteristics:**
- Bland or undesirable flavor

<table>
<thead>
<tr>
<th>Salad</th>
<th>Appearance</th>
<th>Consistency</th>
<th>Flavor</th>
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<tbody>
<tr>
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LESSON 4
NOTES TO THE INSTRUCTOR

PURPOSE OF LESSON:
To be able to prepare a variety of fruit salads to add attractiveness and nutrition to the menu.

OBJECTIVES:
The participant will:
1. Prepare a minimum of 10 fruit salads using the assigned fruit.
2. List at least 3 rules for accident prevention and equipment safety in preparing salads.
3. Demonstrate principles of work simplification in preparation of salads.

SUPPLIES NEEDED:
Filmstrip projector and screen
Filmstrip "Food Service: Accident Prevention and Equipment Safety"
Fruits: (1 can each)
  Peach Halves
  Pineapple Rings
  Orange Sections
  Grapefruit Sections
  Applesauce
  Apple Rings
Garnishes:
  Dates or Prunes
  Parsley
  Blueberries
  Cottage Cheese
  Cream Cheese
  Nuts
  Coconut
  Food Coloring
  Whipped Topping
  5 pastry tubes

HANDOUTS:
  4:1 Accident Prevention and Equipment Safety (Quiz)
  4:2 Work Simplification
  4:3 Fruit Salads
  4:4 Salad Presentation
  4:5 Suggested Salad Combinations
<table>
<thead>
<tr>
<th>Lesson Content</th>
<th>Class Activity and Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Accident Prevention and Equipment Safety</td>
<td>View filmstrip &quot;Food Service: Accident Prevention and Equipment Safety&quot; Take review test and discuss</td>
</tr>
<tr>
<td>A. Discuss questions in class</td>
<td>Class discussion on how to use principles of work simplification can be used to prepare fruit salads</td>
</tr>
<tr>
<td>II. Principles of work simplification</td>
<td>Prepare a variety of at least 10 salads using assigned fruits and appropriate garnishes</td>
</tr>
<tr>
<td>A. Discuss Handout 4:2</td>
<td>Group 1 - Peach halves</td>
</tr>
<tr>
<td>III. Preparation of fruit salads</td>
<td>Group 2 - Pear halves</td>
</tr>
<tr>
<td>A. Discuss Handout 4:3 - Fruit Salads</td>
<td>Group 3 - Pineapple rings</td>
</tr>
<tr>
<td>B. Discuss Handout 4:4 - Salad Presentation</td>
<td>Group 4 - Orange and Grapefruit sections</td>
</tr>
<tr>
<td>C. Discuss Handout 4:5 - Suggested Salad Combinations</td>
<td>Group 5 - Applesauce and Apple rings</td>
</tr>
<tr>
<td>IV. Discuss variety of salads possible using assigned fruits</td>
<td>Practice using pastry tube</td>
</tr>
<tr>
<td></td>
<td>Class vote for group of salads with most originality</td>
</tr>
<tr>
<td>V. Plan for next session on fresh vegetable salads FF pp. 405-414</td>
<td>Evaluation of Fruit Salads - Handout 4:5</td>
</tr>
<tr>
<td></td>
<td>Discuss other ideas for salads</td>
</tr>
<tr>
<td></td>
<td>Choose recipe for next week on fresh vegetable salads</td>
</tr>
<tr>
<td></td>
<td>Plan list of supplies needed for teacher</td>
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<td></td>
<td>Exchange recipes</td>
</tr>
</tbody>
</table>
ACCIDENT PREVENTION AND EQUIPMENT SAFETY

T  F  1. When spills occur, they should be wiped from the floor immediately to prevent falls.

T  F  2. Walk carefully in the kitchen and run only when it is necessary.

T  F  3. When using a ladder, it is necessary to have an assistant hold the ladder.

T  F  4. To avoid falls or other injuries, carry only as much weight as you can safely manage.

T  F  5. When cleaning up broken glass, pick up the larger pieces with your hands and use a broom or brush and a dustpan to pick up the rest of the pieces.

T  F  6. Sharp knives are safer than dull knives.

T  F  7. When cutting with a knife, use strokes that move away from your body.

T  F  8. When not in use, a knife should be left on a counter top where it can be clearly seen.

T  F  9. Always turn the food slicer off and unplug it before using your hands to clear food from the blade area.

T  F  10. Clean the slicer blade from the edge to the center.

T  F  11. Light a gas oven as soon as possible after opening it.

T  F  12. Use a long-handled utensil to place meat or vegetables in boiling water.

T  F  13. Keep handles of cooking utensils on the stove turned toward the edge so they can be reached easily.

T  F  14. A wet pot holder will help to avoid burns when you are picking up hot items.

T  F  15. When using a deep fryer, lower the fryer basket gently into the cooking oil.

T  F  16. Before placing a plug into an electric outlet, check the condition of the plug and cord and be sure the plug corresponds to the outlet.

T  F  17. Avoid standing on a wet surface when using electrical equipment, because a wet surface may cause a dangerous fall.

T  F  18. To serve a hot liquid, place the container on the counter and allow the person you are serving to pick it up.
WORK SIMPLIFICATION

Work simplification is the process of making a job easier. It is the organized use of common sense to find easier and better ways of doing work.

1. Make rhythmic and smooth-flowing motions.
2. Make both hands productive at the same time.
3. Make hand and body motions few, short, and simple.
4. Maintain comfortable working positions and conditions.
5. Locate materials for efficient sequence of motions.
6. Use the best available equipment for the job.
7. Locate activity in normal work areas when possible.
8. Store materials in an orderly manner.

To apply principles of work simplification, use these approaches:

1. Eliminate the unnecessary work.
2. Combine operations.
3. Rearrange the sequence of operations.
4. Simplify the necessary operations.
1. Choose fruit according to the purpose for which it will be used. Sliced or diced pears are suitable for gelatin salads and are less expensive than pear halves. Pineapple rings come in various sizes for salads with cottage cheese, but crushed or tidbits are more suitable for gelatin salads.

2. Fresh fruit should be stored in the refrigerator.

3. Canned fruit should be kept in a cool, dry place for no longer than one year.

4. After fruit has been opened, if all is not used, it should be covered and put into the refrigerator.

5. Fresh berries and soft fruit should be held in shallow pans to prevent crushing.

6. Large enough pieces should be served, so identity of fruit will not be lost.

7. A sharp knife should always be used in preparing fruit.

8. Preparation of raw fruits is important.
    a. Discard spoiled fruit; wash and use injured fruit at once.
    b. Wash and dry fruits that have smooth skins before they are stored in the refrigerator.
    c. Do not wash berries, cherries or grapes before storing. Wash before using.
    d. Avoid overhandling the fruit.

9. Apples or bananas should be sprinkled with or dipped in a solution of ascorbic acid, orange juice, pineapple juice, etc. to keep them from turning dark.

10. Canned fruits should be drained well with the cut side down.

11. Dip fresh fruits which are to be peeled into hot water to help remove skins.
SALAD PRESENTATION

Appearance is the purpose of every presentation, whether the food is hot or cold. It is especially important for cold foods because they lack the concept of an appetizing aroma. On the other hand, the fresh colors and textures of many cold foods offer more visual potential than most hot dishes. There are three essentials to consider in presentation: height, color, and unity.

HEIGHT

Height gives a salad interest and importance. A raised surface or high point calls attention to itself. A flat and level surface is monotonous and self-effacing.

Height in a salad can be in one of two forms: actual or implied. Actual height in a leafy salad, for example, may be achieved by loosely arranging the greens on the plate so that they are higher in the center than toward the edges of the plate. Figure 1 shows the difference this makes.

![Figure 1: Actual height in salad arrangement](Image)

Another way of achieving height is by adding a garnish that has some height. For instance, a plate of sliced cucumbers may be given actual height by adding a bouquet of parsley.

Where actual height is difficult to attain, implied height, or an illusion of height, can often be achieved by causing the eye to focus on a particular point. This can be done in several ways. One is by arranging ingredients in a pattern that guides the eye to that point, as in Figure 2. Another is to use an eye-catching ingredient or garnish to establish a focal point. If the point is near the center the salad will appear tall.

![Figure 2: Implied height](Image)
Color is very, very important in cold foods. Take a plain unadorned salad bowl and see how dull it looks. Add a wedge of tomato, an it on bright romaine lettuce, and see how color transforms it.

Many people feel the more color in a salad the better, but this philosophy doesn’t work out well in practice. Too many colors tend to confuse the eye and dissipate the attention. Three colors are really all that is needed. They can even be various shades of the same color, such as the three greens of cucumber salad served on lettuce and garnished with parsley.

A limit of three colors is not a hard-and-fast rule. There will be salads where flavor combinations override the color rule, as in a mixed-fruit salad where you might have a whole rainbow of color. But as long as a salad has at least three colors there is no need to add ingredients or garnishes just to add more color.

There are no precise formulas for choosing and arranging colors in a salad. Colors are like flavors; some go well together and some don’t. Bell pepper and tomato colors complement each other; carrot and tomato together create color confusion. The way to learn to handle color in a salad is to experiment with it and follow good examples of other people’s work.

**UNITY**

Creating unity in a food presentation can be compared to putting round pegs in round holes. Unity refers to the relationship of the whole salad to the serving piece on which it is presented. The layout of the salad must fit the shape of the salad plate.

Salads are usually presented on round plates. This means that the lines, forms, and shapes of the salad ingredients must be arranged in a pattern that fits harmoniously into a circle. The pattern may repeat the curve of the plate’s edge, or echo its roundness on a smaller scale, or complement it with balance and symmetry.

The pattern begins with the rim of the plate. Never place anything on the rim; it is the frame of your design. If you use a lettuce, you can arrange it in a circle within the rim to repeat the shape.

The examples on this page illustrate how various patterns can be used to complement the circular shape of the plate. Figure 3 is a salad of sliced tomato served with egg wicks. Not all these items are round, but they

![FIGURE 3](image)

![FIGURE 4](image)

![FIGURE 5](image)
are placed in a circular pattern. This not only unifies the salad but adds implied height by focusing the eye on the center of the plate.

Figure 4 is an arrangement of cucumber slices. They themselves are little circles, and when placed in a circular arrangement they echo and re-echo the roundness of the plate, creating a unified presentation. Parsley sparks the pattern with contrast.

Some other possible arrangements utilize straight lines in circular patterns, and curves that repeat the curve of the plate’s edge. (Figure 5)

Often a round lettuce liner can help to unify a salad composed of stiff linear shapes or a diversity of shapes. If the ingredients are grouped symmetrically and there is a focal point in the center of the plate, the effect is one of unity in spite of the awkward shapes. Figure 6 shows asparagus spears and tomato slices in a balanced arrangement with a bouquet of parsley in the middle for height and focus.

The cold luncheon plate follows the same rules of presentation. Figure 7 shows a harmonious arrangement of the salad-sandwich luncheon plate.
1. A salad is brought to life by an appropriate garnish used as an accent, a color contrast, a focal point. On the other hand, there is no need to garnish a salad that is already colorful and well designed. Often an ingredient of the salad itself can take over the function of a garnish by its position, shape, and color, and there is then no point to adding a further garnish. The most effective garnish is something bright, eye-catching, contrasting in color and pleasing in shape. Look at the raw materials available to you in terms of bits of shape and color and be creative. Do limit your choice to things compatible in taste and spirit with the salad itself.

Use your garnishes in odd numbers— one, three, five. Stick to one garnish or a group of such go-togethers as a black olive, a green olive, and a cherry tomato. Place the garnish or group of garnishes in one spot only. To make this point clear, look at the bad example on the right and the good example on the left in Figure 8. The one on the right scatters the attention; the one on the left concentrates the attention and thus helps to unify the presentation. The garnish must always be planned as part of the total presentation.

Keep in mind that a garnish should play the role of an accent and should not steal the show. Garnishes cut into fancy shapes may draw attention to themselves and diminish the salad, as an overdressed woman is outdone by her jewels and furs. In addition, the labor cost of creating such garnishes cannot be justified for the individual salad plate.

FIGURE 8. Placing the garnish

Grouping the parsley sprigs in the center pulls the salad together. Placing them symmetrically around the edge dissipates the attention and creates a helter-skelter effect even though it fills out the round form of the plate.
<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Dressing</th>
<th>Garnish</th>
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<tbody>
<tr>
<td>Fruit salads</td>
<td></td>
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<tr>
<td>Diced apple, celery rings, and chopped pecans</td>
<td>Mayonnaise or cooked dressing</td>
<td>Salad cherry or bright berries</td>
</tr>
<tr>
<td>Diced apple, half sections of orange</td>
<td>Fruit dressing</td>
<td>Strips of date</td>
</tr>
<tr>
<td>Apple julienne, pineapple tidbits, orange and grapefruit sections</td>
<td>French</td>
<td>Chopped red and green pepper</td>
</tr>
<tr>
<td>Apple, orange, and grapefruit segments in alternating arrangement</td>
<td>Poppyseed and honey</td>
<td>Green pepper ring</td>
</tr>
<tr>
<td>Apricot halves, pineapple, and orange segments</td>
<td>Fruit dressing</td>
<td>Spiced prune</td>
</tr>
<tr>
<td>Avocado, pineapple, and orange segments</td>
<td>French</td>
<td>Sliced stuffed olive</td>
</tr>
<tr>
<td>Avocado and grapefruit sections</td>
<td>Celery seed</td>
<td>Sliced kumquat</td>
</tr>
<tr>
<td>Banana chunks rolled in chopped peanuts with pineapple ring</td>
<td>Fruit</td>
<td>Orange sections</td>
</tr>
<tr>
<td>Molded cranberry and orange</td>
<td>Fruit</td>
<td>Orange sections</td>
</tr>
<tr>
<td>Bing cherries, mandarin oranges, and slivered almonds in black cherry gelatin</td>
<td>Fruit</td>
<td>Frosted green grapes</td>
</tr>
<tr>
<td>Grapefruit and red-apple sections</td>
<td>Honey</td>
<td>Seeded Tokay halves</td>
</tr>
<tr>
<td>Grapefruit and pineapple sections with chopped green pepper and diced cucumber</td>
<td>Honey</td>
<td>Tarragon jelly cubes</td>
</tr>
<tr>
<td>Orange diced, shredded carrot, and raisins</td>
<td>Sour cream</td>
<td>Celery rings</td>
</tr>
<tr>
<td>Peach half filled with cranberry relish</td>
<td>Fruit</td>
<td>Green grapes</td>
</tr>
<tr>
<td>Diced pineapple, orange, and celery in lime gelatin</td>
<td>Fruit</td>
<td>Salad cherry</td>
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<tr>
<td>Pineapple ring, honeydew-melon balls, and orange sections</td>
<td>Fruit</td>
<td>Fresh berries</td>
</tr>
<tr>
<td>Pineapple fingers, sliced orange, green grapes</td>
<td>Fruit</td>
<td>Shredded coconut</td>
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<tr>
<td>Pineapple chunks and green grapes</td>
<td>Fruit</td>
<td>Fresh strawberry</td>
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<tr>
<td>Pineapple tidbits with grapefruit and apple segments</td>
<td>Poppyseed</td>
<td>Crumbled blue cheese</td>
</tr>
<tr>
<td>Pineapple chunks, celery rings, chopped nuts</td>
<td>Fruit</td>
<td>Stuffed prune</td>
</tr>
<tr>
<td>Spiced prune with pineapple ring</td>
<td>Honey</td>
<td>Mandarin orange</td>
</tr>
<tr>
<td>Crushed pineapple and diced cucumber</td>
<td>Fruit</td>
<td>Silvered almonds</td>
</tr>
<tr>
<td>Grated carrot, celery rings, and raisins or peanuts</td>
<td>Combination</td>
<td>Spanish peanuts</td>
</tr>
<tr>
<td>Cabbage, celery, and chopped green pepper</td>
<td>Combination</td>
<td>Orange slice</td>
</tr>
<tr>
<td>Shredded carrot, pineapple tidbits, diced celery</td>
<td>Mayonnaise</td>
<td>Nuts</td>
</tr>
<tr>
<td>Shredded cabbage, radish slices; celery rings</td>
<td>Sour cream</td>
<td>Green pepper ring</td>
</tr>
<tr>
<td>Perfection—molded chopped cabbage, celery, green pepper, and pimento</td>
<td>Combination</td>
<td>Pimento strip</td>
</tr>
<tr>
<td>Whole-kernel corn, cut green beans, chopped celery, onion, green pepper, and pimento</td>
<td>Combination</td>
<td>Stuffed olive</td>
</tr>
<tr>
<td>Cole slaw</td>
<td>Cream</td>
<td>Tomato wedge</td>
</tr>
<tr>
<td>Cucumber and sweet onion slices</td>
<td>Sour cream</td>
<td>Chopped parsley</td>
</tr>
<tr>
<td>Green limas, sliced green onions, celery rings</td>
<td>Combination</td>
<td>Carrot curl</td>
</tr>
</tbody>
</table>
PURPOSE OF LESSON:
To demonstrate good techniques in the preparation of a good quality vegetable salad.

OBJECTIVES:
The participant will:

1. Demonstrate proper techniques in the preparation of a good quality vegetable salad.

2. Demonstrate proper techniques in using hand and mechanical equipment in the preparation of vegetable salads including a French knife.

3. Describe some of the many products available for making vegetable salads, how to handle them and how to combine them for interesting salads.

SUPPLIES NEEDED:
Slide projector, screen and tape recorder
"Cold Food Preparation - Salads"
French Knife
Cutting Board
Cutting Knife
Peeler
Egg Slicer
Scissors
Hand Salad Maker
Melon Ball Scoop
Grapefruit Knife
Ingredients for Salads and Dressings Using Student List

HANDOUTS:
5:1 Vegetable Salads
5:2 Effect of Storage Procedures on Lettuce
5:3 Equipment
5:4 Scorecard for Vegetable Salads
5:5 Salad Dressings
5:6 Salad Dressing Evaluation
# FOOD SERVICE EMPLOYEE SHORT COURSE

## Module III: Vegetables and Salads with Pizazz

### Lesson 5

#### Lesson Content

<table>
<thead>
<tr>
<th>I. Buying Fresh Produce</th>
<th>CLASS ACTIVITY AND EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Should be fresh, bright color, crisp and firm</td>
<td>View filmstrip &quot;Cold Food Preparation - Salads&quot;</td>
</tr>
<tr>
<td>B. Buy in season</td>
<td>Evaluate lettuce on Handout 5:2 - &quot;Effect of Storage Procedures on Lettuce&quot;</td>
</tr>
<tr>
<td>C. Buy only what you can use and hold without spoilage</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>II. Preparation of Vegetable Salads</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Discuss Handout 5:1 - &quot;Vegetable Salads&quot;</td>
</tr>
<tr>
<td>B. Discuss results of Handout 5:2 - &quot;Effect of Storage Procedures on Lettuce&quot;</td>
</tr>
<tr>
<td>C. Discuss ideas for Salad Bars</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>III. Proper equipment for making vegetable salads - hand equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Cutting board - sanitary and easily cleaned</td>
</tr>
<tr>
<td>B. French knife</td>
</tr>
<tr>
<td>1. Grasp knife firmly</td>
</tr>
<tr>
<td>2. Place blade point on cutting board</td>
</tr>
<tr>
<td>3. Grasp food. Curl finger tips under</td>
</tr>
<tr>
<td>4. Balance top edge of blade against knuckles</td>
</tr>
<tr>
<td>5. Shove knife downward with a forward slicing motion</td>
</tr>
<tr>
<td>6. Wash knife immediately and place in drawer or knife rack</td>
</tr>
<tr>
<td>C. Paring knife</td>
</tr>
<tr>
<td>1. Use only sharp knives</td>
</tr>
<tr>
<td>2. Use cutting strokes away from body</td>
</tr>
<tr>
<td>3. Stainless steel knives avoid discoloration of lettuce</td>
</tr>
<tr>
<td>D. Peelers - carrots, potatoes, etc.</td>
</tr>
<tr>
<td>E. Egg slicer - slice beets, carrots, potatoes</td>
</tr>
</tbody>
</table>

Students practice using cutting board and French knife or other hand equipment.

Students demonstrate the following:

- Chop
- Cube
- Julienne
- Dice
- Shred
- Grate
### Lesson Content

<table>
<thead>
<tr>
<th>F. Kitchen scissors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cut marshmallows, figs, dates, grapes, parsley, etc.</td>
</tr>
<tr>
<td>2. For sticky foods dip blades in hot water or food in powdered sugar</td>
</tr>
</tbody>
</table>

| G. Hand salad maker |

### Class Activity and Evaluation

| Student will practice using attachments for mixer shredding carrots or cabbage |
| In small groups, prepare a good quality vegetable salad using recipes in FF 405-415 |
| One group prepare a relish plate |
| Evaluate salads using Scorecard for Vegetable Salads - Handout 5:4 |

#### Mechanical equipment for making salads

| A. Attachments for mixer - Handout 5:3 |
| B. Electric chopper and mixer |
| C. Electric slicer - tomatoes, cheese, onions, carrots, cabbage, lettuce and celery |

#### Preparation of vegetable salad

#### Discuss evaluation of vegetable salads using scorecard

#### Salad Dressings

| A. Discuss information sheet 5:5 - Salad Dressings |
| B. Prepare one or more of the following salad dressings: |
| 1. Mayonnaise |
| 2. Cooked salad dressing |
| 3. French dressing |
| 4. Fruit salad dressing |
| 5. Variation of French dressing |

#### Plan for next session on miscellaneous salads

| A. Choose a starchy salad, a main dish salad and a relish tray with a dip |

| Evaluate salad dressings: Handout 5:6 - Salad Dressing Evaluation |
| Sample salad dressings with vegetable salads |
| Refrigerate dressings for possible use in next class |

| Plan list of supplies needed for next class |
| Complete recipe exchange |
VEGETABLE SALADS

You can judge a quality salad by applying these standards:

1. A good salad is simple.
2. A good salad is colorful.
3. A good salad is pretty to look at.
4. Most salads should have an underliner or as base.
5. The greens should be firm and crisp, moist, but not wet.
6. Ingredients should be in sizes easily managed with a fork.

Salad greens

The most commonly used salad green is iceburg lettuce. Other frequently used
lettuce includes butterhead, bibb, romaine, curly endive, and escarole.
Other leafy vegetables used in salads are turnip and mustard greens, regular
or red cabbage, and Chinese cabbage.

To prepare salad greens use the following steps:

1. Select fresh, crisp salad greens. Clean and refrigerate them as quickly as possible.
2. Remove soiled or damaged outside leaves.
3. To clean iceburg lettuce, remove the core by hitting the core end sharply
on the counter, then twist the core to remove it. Run water into the area
where the core was removed and separate the lettuce leaves. Turn the core
end down and drain.
4. Wash salad greens in lukewarm water because this removes soil more thoroughly
than cold water and will not wilt the greens if done quickly. Add 4 T. salt
to 1 gal, water to remove bugs. Do not allow greens to soak in water.
Finish with a rinse in very cold water or with a cold water spray.
5. An alternate method of cleaning greens or other vegetables which are not
cooked is to add 2 T. household liquid chlorine bleach to each gal. of
water. Dunk the vegetables up and down or around several times during
the soaking process. Rinse the vegetables in fresh running water.
6. Drain thoroughly on wire racks.
7. Place racks in containers or on trays and cover with clean, damp cloths
or store in tightly closed containers before chilling in the refrigerator.
Cover greens so they will not become dehydrated.
8. Chill in the refrigerator at least 2 hours to crisp.
9. All salad greens are fragile and must be handled with care. They bruise and
discolor easily. Hand tearing or using a stainless steel knife prevents
discoloration.
Salad Vegetables

Many types of vegetables can be used in salads. Foods can be cooked, uncooked, hot, cold, or frozen. Salads are a way to use cooked leftover vegetables. The nutrients are better retained and leftover vegetables will taste better in a salad than if re-served as a heated vegetable. Remember, however, that poor salad ingredients cannot be disguised by adding salad dressing.

When preparing vegetables, be careful to preserve taste and texture. Remove the inedible parts of vegetables. Be sure they are free from defects.

Many vegetable salads are made of one or more raw vegetables cut into various shapes. When two or more vegetables are combined they should be chosen for their complementary flavors and colors.

Many vegetables do not have good holding qualities. You should cut them as close as possible to the intended use time, so that they do not dry out or shrivel at the edges.

Tips in preparing vegetable salads include:

1. To prepare vegetables such as carrots and celery, wash them thoroughly, pare them if necessary, and cut them to desired shape. Use a sharp stainless steel knife to cut vegetables to avoid bruising them during preparation.

2. Ingredients should be somewhat uniform in size. Pieces should be large enough to be identified but not so large that they are difficult to eat.

3. Keep cold salads cold. The prime rule in the preparation of cold salads is to have all ingredients chilled by keeping them refrigerated except when assembling. Use cold dishes and refrigerate proportioned salads.

4. Salads in a salad bowl may not need a liner.

5. The use of a large amount of lettuce to garnish salads usually is wasteful, for it may not be eaten; in general, one-half of a large leaf or one smaller leaf is enough. Shredded lettuce as a base is particularly useful in arranging placed salads.

6. Avoid complex "placed" arrangements. Simple, natural salad arrangements are difficult to improve upon, and a "placed" salad often looks overhandled.

7. Vegetables such as cauliflower, broccoli, and cabbage may contain tiny mites which can be removed by soaking in cold, salted water for thirty minutes. When vegetables have finished soaking, lift them out of the water. Do not leave them in the water, as water-soluble vitamins will be lost.

8. Drain canned vegetables before using.

9. To remove the skin of tomatoes, dip them into boiling water until the skin is loosened and then dip the tomatoes into cold water.

10. Cut or shred firm vegetables such as carrots and cabbage. Firm vegetables are easier to eat if they are cut or shredded.
11. Marinate tomato wedges in French dressing before adding to other ingredients and they will be less watery. Fresh tomatoes or cucumbers should not be mixed in combined salads until the salad is ready to be served. The acid from these vegetables will tend to wilt the other vegetables in the combinations.

12. An entire stalk of celery can be cut at one time with a French knife and then swept into a colander. Wash under a strong stream of water.

13. Onions should be held under lukewarm water when cleaning and cutting. They can be cut unpeeled in quarters from top to bottom, then the skin removed from quarters by pulling the skin out and down. This method will help avoid discomfort and that tear-stained look.

14. All stems should be broken from the leaves of spinach before washing.

15. Usable celery tops and outer leaves of lettuce and cabbage should not be discarded as they contain valuable nutrients.

16. Nuts used in salad are coarsely cut or broken and added last so they will not become soft.

17. Bare hands must not be used in mixing salads. If it is necessary to mix or toss ingredients in a large container, long plastic gloves covering hands and arms should be used. Two plates will help in turning salad mixtures.

18. If vegetables are not as crisp as desired, enclose them in a plastic bag with a small amount of ice and refrigerate for a few minutes.

19. Store salads covered in the refrigerator before serving. Use Saran wrap, wax paper, or aluminum foil. If salads are covered, there will be less drying, absorption of odors, and giving off of odors than if they are stored uncovered.

20. For green salads, add the dressing just before serving.
Table 11.1 (Continued)

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Dressing</th>
<th>Garnish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tossed romaine, iceberg, and curly chicory</td>
<td>French, Thousand islands, or blue cheese</td>
<td>Cheese or garlic croutons</td>
</tr>
<tr>
<td>Caesar—Romaine, parmesan and blue cheese, peas, chopped pickle, celery, and pimento</td>
<td>Garlic flavored oil, raw egg, and lemon juice</td>
<td>Croutons and anchovy fillets</td>
</tr>
<tr>
<td>Green Goddess—salad greens, grated cheddar, and shrimp or crabmeat</td>
<td>Green Goddess</td>
<td>Tomato wedges</td>
</tr>
<tr>
<td>Broken iceberg lettuce and fresh spinach, chopped onion and celery</td>
<td>French</td>
<td>Chopped hard-cooked egg</td>
</tr>
<tr>
<td>Long green beans, beat slices, marinated limas and snipped chives</td>
<td>Mayonnaise</td>
<td>Shredded cheddar cheese</td>
</tr>
<tr>
<td>Tomato and cucumber slices</td>
<td>French</td>
<td>Sliced young onion</td>
</tr>
<tr>
<td>Tomásó aspic with vegetables</td>
<td>Mayonnaise</td>
<td>Ripe olive</td>
</tr>
<tr>
<td>Diced zucchini and tomato with celery rings</td>
<td>French</td>
<td>Sliced hard cooked egg</td>
</tr>
<tr>
<td>Kidney beans, chopped celery, onion, and pickle</td>
<td>Combination</td>
<td>Julienne ham and Swiss cheese</td>
</tr>
<tr>
<td>Club—macaroni, hard-cooked egg, chopped pickle, olives, celery, onion, and green pepper</td>
<td>Combination</td>
<td>Parsley and cherry tomato</td>
</tr>
<tr>
<td>Salmon flakes, dices celery and eggs, chopped pickle</td>
<td>Mayonnaise</td>
<td>Ripe olives</td>
</tr>
<tr>
<td>Shrimp salad with avocado slices</td>
<td>Mayonnaise</td>
<td>Pickle slice</td>
</tr>
<tr>
<td>Lobster salad with tomato slice</td>
<td>Mayonnaise</td>
<td>Stuffed olive</td>
</tr>
<tr>
<td>Potato, frankfurter, hard-cooked egg, cucumber, and minced onion</td>
<td>Combination</td>
<td>Sliced hard-cooked egg and cheese</td>
</tr>
<tr>
<td>Tuna salad with cucumber slices</td>
<td>Combination</td>
<td>Part of the julienne meat and cheese</td>
</tr>
<tr>
<td>Chef's salad—iceberg and romaine lettuce; chopped green onion; celery rings; julienne beef, ham, tongue, or chicken; Swiss cheese, and anchovy fillets</td>
<td>2 parts mayonnaise and 1 part French mixed</td>
<td>Shredded cheddar</td>
</tr>
<tr>
<td>Vegetable Salads</td>
<td>French</td>
<td>Shredded cheddar</td>
</tr>
<tr>
<td>Asparagus tips, tomato and cucumber slices</td>
<td>Mayonnaise</td>
<td>Stuffed olive</td>
</tr>
<tr>
<td>Main-Dish Salads (cheese, egg, fish, meat)</td>
<td>Mayonnaise</td>
<td>Grapefruit sections</td>
</tr>
<tr>
<td>Asparagus tips with chicken salad</td>
<td>Combination</td>
<td>Watercress</td>
</tr>
<tr>
<td>Avocado filled with chicken or crab salad</td>
<td>Combination</td>
<td>Watercress</td>
</tr>
<tr>
<td>Cottage cheese, herb flavored with sliced tomato</td>
<td>Combination</td>
<td>Watercress</td>
</tr>
<tr>
<td>Cottage cheese with pineapple ring or peach half</td>
<td>Fruit</td>
<td>Salad cherry</td>
</tr>
<tr>
<td>Chicken salad, grapefruit segments</td>
<td>Mayonnaise</td>
<td>Whole salted almonds</td>
</tr>
<tr>
<td>Jellied chicken with pineapple and slivered almonds</td>
<td>Mayonnaise</td>
<td>Pepper ring</td>
</tr>
<tr>
<td>Egg salad and tomato wedges</td>
<td>Combination</td>
<td>Parsley sprig</td>
</tr>
<tr>
<td>Frozen cream cheese and fruit</td>
<td>Fruit</td>
<td>Walnut halves</td>
</tr>
<tr>
<td>Ham salad with asparagus tips</td>
<td>Combination</td>
<td>Tomato wedge</td>
</tr>
<tr>
<td>Crab Louis—crabmeat, hard-cooked egg, and tomato slices, wedges, or cherries</td>
<td>Thousand island</td>
<td>Ripe olives</td>
</tr>
<tr>
<td>Marinated asparagus cuts, celery rings, and tomato chunks</td>
<td>Sour cream</td>
<td>Sliced green onion</td>
</tr>
</tbody>
</table>
Effect of Storage Procedures on Lettuce

1. Cut out the core of a fresh head of lettuce with a sharp, pointed knife.
2. Run cold tap water into the cut end and loosen the leaves.
3. Place the cut end down on a wire rack to let the water drain out.
4. Separate the leaves and store the leaves in the ways listed in column 1 (one leaf for each part).
5. Record appearance in column 2.

<table>
<thead>
<tr>
<th>Method of storage (for about 24 hours)</th>
<th>Crisp</th>
<th>Fairly Crisp</th>
<th>Wilted</th>
<th>Dried</th>
<th>No discoloration</th>
<th>Slightly Discolored</th>
<th>Discolored</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room temperature, unwrapped</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refrigerator, unwrapped</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airtight jar at room temperature</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airtight jar in refrigerator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A chopper-mixer is the newest piece of equipment available for food preparation. If used correctly, it can eliminate many hours of chopping with a French knife in a vegetable preparation area. The speed at which this machine chops is almost unbelievable.

It uses two knives to cut food as it mixes. Food is not crushed as the blades rotate. Its blades turn at either 1700 or 3200 revolutions per minute (two speeds), and it will rapidly reduce food to a puree if care is not exercised.

The chopper-mixer may be used for different purposes by adjusting its blades up or down on its shaft. With blades high on the shaft and chopping in water, items such as lettuce, cabbage, celery, onions, and apples can be chopped into salad-size pieces in from 3 to 7 seconds. The time required to make mayonnaise is about 30 to 40 seconds or as rapidly as salad oil can be added.

To make a meat loaf mixture the unground pieces of meat, whole onion, celery, pepper, and loaves of bread are put into the mixer. The cutting-mixing time is from 60 to 90 seconds on No. 1 speed.

**KEY POINTS**

- To cut vegetables in water, remove the stir paddle.
- Sharpen the blades with an emery stone each day before using.
- Pause a second or two when shifting from low to high speed or vice versa.
- To grease: Use grease gun every week on all fittings.

**TO CLEAN**

- Remove shaft with blades.
- Remove blades at end of each day's use.
Uses for Selected Attachments

Vegetable Hopper--The purpose of the vegetable hopper cover is to force the food through the hopper. The rotor in the hopper turns to force the food through the plate. Do not add food while the rotor is in motion, as fingers might get caught in the hopper.

Plate attachments are available for use with the vegetable hopper.

Slicer Plate

1. Slicing vegetables for salads and soups.
2. Slicing firm fruits, such as apples for salads.
3. Slicing other vegetables, such as potatoes for scalloping and cabbage for steaming.

HINT: Fasten a plastic bag to the machine to catch the food. The bag fills easily, stores easily in the refrigerator, reduces discoloration of vegetables, and keeps food moist.

Grater Plate

1. Grating hard vegetables, such as carrots, parsnips, and turnips.
2. Grating dry bread for crumbs.

HINT: Use a stiff brush to clean the plates. Toast the bread to a golden brown before grating.

Shredder Plate

1. Shredding cabbage for coleslaw.
2. Shredding vegetables for soups and salads.

HINT: Shredding onions into a plastic bag reduces eye and nose irritation.

HINT: Put a piece of bread through the chopper after grating cheese.
FOOD SLICERS

A food slicer slices food into accurate portions. It saves labor because it slices more rapidly than can be done by hand.

There are hand-operated slicers and electric slicers. There are slicers that require the food to be hand fed into the blade. There are gravity-fed slicers that slice the food as the weight of the food slides it into the blade.

USES:
- Slicing meat products.
- Slicing vegetables such as onions, tomatoes, carrots, cabbage, lettuce, celery.
- Reversing cabbage and lettuce slices to dice them when they pass the blade.

SAFETY PRECAUTIONS
Safety precautions must be observed while using a slicer:

- All guards must be over the blade.
- The slicing spacer must be closed when cleaning the blade.

MAINTENANCE
- Lubricate the carriage shaft.
- Oil all oil openings monthly.
- Sharpen the blade before use. As a minimum, sharpen it at least weekly.

TO CLEAN
- Wash with a warm detergent solution after each use.
- To clean out scraps: Remove carriage. Remove guards over blade and open the flap below and to the left of the blade. Wash all parts.
- Rinse with hot, clear water.
- Dry with a paper towel or clean cloth.
VEGETABLE PEELER

This machine removes the outer skin from vegetables such as potatoes or carrots; it reduces labor to a minimum. It is a very simple piece of machinery, but to use it properly requires certain procedures for best results.

A peeler can waste great quantities of food rapidly by grinding vegetables to a pulp that is flushed down the drain. Therefore, the length of time it runs after vegetables have been added is most important.

POSSIBLE CAUSES FOR TROUBLE

- Peeler is not level.
- Insufficient water running while machine is peeling vegetables.
- Holes rusted in peel trap (which catches peelings) may release enough peelings to clog sewer lines.

TO OPERATE

- Sort vegetables by size – large potatoes separated from small potatoes.
- Start peeler - turn on water, then add vegetables.
- Do not overload.
- Do not operate more than 3 minutes for each load.
- Keep water flowing until finished peeling.

TO CLEAN

- Clean after each use.
- Rinse with water.
- Remove top, then remove bottom from inside the peeler.
- Use a brush to remove peelings while rinsing with water.
- A detergent may be used.
- Empty the peel trap, rinse thoroughly, and sanitize.
- Dry the exterior and replace parts.
- Oil every six months.
SCORECARD FOR VEGETABLE SALADS

Score product as follows:
Very good.............4
Good...................3
Fair...................2
Poor...................1

Appearance

Good Characteristics:
Clean
Crisp
Colorful with contrast
Ingredients unidentifiable
Tossed carefully
Fresh

Poor Characteristics:
Signs of rust or soil
Soggy
Soggy
Too many ingredients
Solid mass
Wilting

Temperature

Cold
Room temperature
Soggy and tough

Texture and Flavor

Pleasing texture
Interesting flavor combinations
Seasoning that develops the flavor of salad ingredients

Stringy and tough
Bland
A dressing or seasoning that is too strong
When selecting a dressing for a salad, consider its flavor and consistency in relation to other parts of the salad. Dressing adds flavor—usually sharp and tangy—to the salad. The type of dressing should complement, not mask, the salad ingredients. Sometimes a choice should be offered a patron as in a salad bar.

I. Types of salad dressings

A. French dressing is a mixture of oil, vinegar and seasonings.
   1. Clear French dressing—separates upon standing—temporary emulsion
   2. Creamy French dressings stay mixed
   3. Emulsions—forms a film around the oil droplets, keeping them apart and preventing the liquids from separating. Egg and pectin are emulsifiers.

B. Mayonnaise is smooth and creamy
   1. It is made by beating oil very slowly into seasoned vinegar and egg.
   2. It is milk flavored so it blends well with extra seasonings.

C. Cooked dressing has a cooked white-sauce-and-egg base, with vinegar and butter stirred in. It is fluffy and creamy, has a zippy flavor, and is delicious in foods such as potato salads.

D. Salad dressing is a rich smooth blend of mayonnaise and cooked salad dressing.

II. Ingredients needed for making salad dressings are:

A. Acid—v vinegar, usually cider vinegar.

B. Seasoning—salt, pepper, mustard, sugar, spices, herbs

C. Thickness—cornstarch and egg yolks for boiled dressing.

D. Emulsifier—egg yolk for mayonnaise.

E. Liquid—milk in boiled dressing. In other dressings, oil and vinegar.
### Salad Dressing Evaluation

**Variety:** YES  NO

<table>
<thead>
<tr>
<th>Appearance:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid</td>
<td></td>
</tr>
<tr>
<td>Bright</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Body &amp; Texture:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Creamy</td>
<td></td>
</tr>
<tr>
<td>Oily</td>
<td></td>
</tr>
<tr>
<td>Lumpy</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flavor:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Salty</td>
<td></td>
</tr>
<tr>
<td>Bland</td>
<td></td>
</tr>
<tr>
<td>Spicy</td>
<td></td>
</tr>
<tr>
<td>Tart</td>
<td></td>
</tr>
<tr>
<td>Sweet</td>
<td></td>
</tr>
<tr>
<td>Oily</td>
<td></td>
</tr>
</tbody>
</table>

**Preparation Used:**

311
PURPOSE OF LESSON:
To prepare a salad dressing and describe salads with which it can be used.

OBJECTIVES:
The participant will:

1. Evaluate the one day food intake for her/himself using the Basic Four Food Guide.
2. Demonstrate proper techniques in preparing a starchy or miscellaneous salad.
3. Demonstrate proper method of preparing a main dish salad.
5. Evaluate the short course.

SUPPLIES NEEDED:
- Filmstrip projector
- Filmstrip "Food to Grown On: The Independent Twenties"
- Filmstrip "Food to Grown On: The Changing Forties"
- Ingredients for salads and relish plate with dip using student list.

HANDOUTS:
- 6:1 Basic Four Food Group Guide
- 6:2 Function of Vitamins and Minerals
- 6:3 Guide for Using Salad Dressings
- 6:4 Scorecard for Miscellaneous Salads
- 6:5 Evaluation Form for Short Course
### LESSON CONTENT

<table>
<thead>
<tr>
<th>I. Good Nutrition</th>
<th>Class Activity and Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discuss meeting nutrient needs for individuals using Basic Four Food Guide, emphasizing Vitamins A and C and Iron Discus Handout 6:2 - Function of Vitamins and Minerals</td>
<td>View Filmstrip &quot;Food To Grow On: The Independent Twenties&quot; or &quot;Food To Grow On: The Changing Forties&quot;</td>
</tr>
<tr>
<td>II. Review of Salad Dressings</td>
<td>Record nutrient intake for previous day</td>
</tr>
<tr>
<td>Discuss Handout 6:3 - A Guide for Using Salad Dressings</td>
<td>Evaluate intake using Basic Four Food Guide</td>
</tr>
<tr>
<td>III. Prepare and display salads using principles presented in previous lessons</td>
<td>Discuss how to include nutrients lacking in diet</td>
</tr>
<tr>
<td>IV. Discuss evaluation of miscellaneous salads</td>
<td>In small groups prepare assigned miscellaneous salads, including potato salad or macaroni salad, a main dish salad and a relish plate</td>
</tr>
<tr>
<td>V. Summarize material presented in previous classes</td>
<td>Evaluate miscellaneous salads using Handout 6:4 - Scorecard for Miscellaneous Salads</td>
</tr>
<tr>
<td>VI. Evaluate short course</td>
<td>Evaluate short course using Handout 6:5 - Evaluation Form for Short Course</td>
</tr>
</tbody>
</table>
Guide to Good Eating
A Recommended Daily Pattern

Meat Group
Protein
Thiamin (B1)

Fruit-Vegetable Group
Vitamins A and C

Grain Group
Carbohydrates
Thiamin (B1)

Nutrient Groupings

Calcium
Riboavin (B2)
Niacin
Thiamin (B1)
Protein
Iron
Vitamin A

Group
2 Servings/Adults
4 Servings/Teenagers
3 Servings/Children

Foods made from milk contribute part of the nutrients supplied by a serving of milk.

Meat
Dry beans and peas, soy extenders, and nuts combined with animal protein (meat, fish, poultry, eggs, milk, cheese) or grain protein can be substituted for a serving of meat.

Fruit-Vegetable
Dark green, leafy, or orange vegetables and fruit are recommended 3 or 4 times weekly for vitamin A. Citrus fruit is recommended daily for vitamin C.

Grain
Whole grain, fortified, or enriched grain products are recommended.

Foods and condiments such as these complement but do not replace foods from the four groups. Amounts should be determined by individual caloric needs.


## Guide to Good Eating...

### A Recommended Daily Pattern

The recommended daily pattern provides the " Physicians' Classic Diet Plan."

The recommended servings from the Four Food Groups for adults supply about 1,200 Calories. The chart below gives recommendations for the number and size of servings for several categories of people.

### Food Group

<table>
<thead>
<tr>
<th>Food Group</th>
<th>Recommended Number of Servings:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat, Poultry, Fish</td>
<td>3 4 2 2 2</td>
</tr>
<tr>
<td>Dried Beans and Peas</td>
<td>2 2 2 2 2</td>
</tr>
<tr>
<td>Egg</td>
<td>2</td>
</tr>
<tr>
<td>Cheese</td>
<td>1</td>
</tr>
<tr>
<td>Carrots</td>
<td>2</td>
</tr>
<tr>
<td>Sweet Potatoes</td>
<td>2</td>
</tr>
<tr>
<td>Grapes</td>
<td>2</td>
</tr>
<tr>
<td>Butter, Margarine</td>
<td>2</td>
</tr>
<tr>
<td>Broccoli</td>
<td>2</td>
</tr>
<tr>
<td>Orange</td>
<td>2</td>
</tr>
<tr>
<td>Grapefruit</td>
<td>2</td>
</tr>
<tr>
<td>Papaya</td>
<td>2</td>
</tr>
<tr>
<td>Mango</td>
<td>2</td>
</tr>
<tr>
<td>Strawberries</td>
<td>2</td>
</tr>
<tr>
<td>Lean Pork</td>
<td>2</td>
</tr>
<tr>
<td>Nuts</td>
<td>2</td>
</tr>
<tr>
<td>Fortified Cereal Products</td>
<td>2</td>
</tr>
<tr>
<td>Milk</td>
<td>2</td>
</tr>
<tr>
<td>Yogurt</td>
<td>2</td>
</tr>
<tr>
<td>Collage Cheese</td>
<td>2</td>
</tr>
<tr>
<td>Lean Pork</td>
<td>2</td>
</tr>
<tr>
<td>Nuts</td>
<td>2</td>
</tr>
<tr>
<td>Fortified Cereal Products</td>
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<tr>
<td>Collage Cheese</td>
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<tr>
<td>Lean Pork</td>
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<tr>
<td>Nuts</td>
<td>2</td>
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<tr>
<td>Fortified Cereal Products</td>
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<td>Milk</td>
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<td>2</td>
</tr>
<tr>
<td>Collage Cheese</td>
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<tr>
<td>Lean Pork</td>
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<tr>
<td>Nuts</td>
<td>2</td>
</tr>
<tr>
<td>Fortified Cereal Products</td>
<td>2</td>
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<tr>
<td>Milk</td>
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<tr>
<td>Collage Cheese</td>
<td>2</td>
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<tr>
<td>Lean Pork</td>
<td>2</td>
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<tr>
<td>Nuts</td>
<td>2</td>
</tr>
<tr>
<td>Fortified Cereal Products</td>
<td>2</td>
</tr>
<tr>
<td>Milk</td>
<td>2</td>
</tr>
<tr>
<td>Yogurt</td>
<td>2</td>
</tr>
<tr>
<td>Collage Cheese</td>
<td>2</td>
</tr>
</tbody>
</table>

### Nutrients for Health

- **Protein**: Important Sources of Nutrient | Some major physiological functions
  - Meat, Poultry, Fish | Supplies 4 Calories per gram. Constitutes part of the structure of every cell, such as muscle, blood, and bone; supports growth and maintains healthy body cells. Constitutes part of enzymes, some hormones and body fluids, and antibodies that increase resistance to infection.
  - Dried Beans and Peas | Supplies energy so protein can be used for growth and maintenance of body cells. Unrefined products supply fiber—complex carbohydrates in fruits, vegetables, and whole grains—for regular elimination. Aids in fat utilization.
  - Egg | Major source of energy for central nervous system.
  - Cheese | Supplies essential fatty acids.
  - Bread, Margarine | Provides and carries fat-soluble vitamins (A, D, E, and K).

### Vitamin A (Retinol)

- Important Sources of Nutrient | Some major physiological functions
  - Liver | Assists formation and maintenance of skin and mucous membranes that line body cavities and tracts, such as nasal passages and intestinal tract, thus increasing resistance to infection.
  - Carrots | Functions in visual processes and forms visual purple, thus promoting healthy eye tissues and eye adaptation in dim light.
  - Sweet Potatoes | Aids utilization of iron.
  - Grapes | Forms cementing substances, such as collagen, that hold body cells together, thus strengthening blood vessels, hastening healing of wounds and bones, and increasing resistance to infection.

### Vitamin C (Ascorbic Acid)

- Important Sources of Nutrient | Some major physiological functions
  - Broccoli | Contributes to normal functioning of nervous system.
  - Orange | Functions as part of a coenzyme to promote the utilization of carbohydrate. Promotes normal appetite.
  - Grapefruit | Contributes to normal functioning of nervous system.
  - Papaya | Functions as part of a coenzyme to promote the utilization of carbohydrate. Promotes normal appetite.
  - Mango | Functions as part of a coenzyme to promote the utilization of carbohydrate. Promotes normal appetite.
  - Strawberries | Functions as part of a coenzyme to promote the utilization of carbohydrate. Promotes normal appetite.

### Thiamin (B1)

- Important Sources of Nutrient | Some major physiological functions
  - Lean Pork | Aids in utilization of energy.
  - Nuts | Functions as part of a coenzyme in the production of energy within body cells. Promotes healthy skin, eyes, and clear vision.
  - Fortified Cereal Products | Functions as part of a coenzyme in the production of energy within body cells. Promotes healthy skin, eyes, and clear vision.

### Riboflavin (B2)

- Important Sources of Nutrient | Some major physiological functions
  - Liver | Aids in utilization of energy.
  - Milk | Functions as part of a coenzyme in fat synthesis, tissue respiration, and utilization of carbohydrate. Promotes healthy skin, hair, and digestive tract. Aids digestion and fosters normal appetite.
  - Yogurt | Functions as part of a coenzyme in fat synthesis, tissue respiration, and utilization of carbohydrate. Promotes healthy skin, hair, and digestive tract. Aids digestion and fosters normal appetite.
  - Collage Cheese | Functions as part of a coenzyme in fat synthesis, tissue respiration, and utilization of carbohydrate. Promotes healthy skin, hair, and digestive tract. Aids digestion and fosters normal appetite.

### Calcium

- Important Sources of Nutrient | Some major physiological functions
  - Milk | Combinations with other minerals within a protein framework to give structure and strength to bones and teeth.
  - Yogurt | Aids in blood clotting.
  - Cheese | Functions as part of enzymes involved in tissue respiration.
  - Sardines and Salmon with Bones | Functions as part of enzymes involved in tissue respiration.
  - Collard, Kale, Mustard, and Turnip Greens | Functions as part of enzymes involved in tissue respiration.
  - Bread, Margarine | Functions as part of enzymes involved in tissue respiration.
  - Lean Pork | Functions as part of enzymes involved in tissue respiration.
  - Fortified Cereal Products | Functions as part of enzymes involved in tissue respiration.
  - Milk | Functions as part of enzymes involved in tissue respiration.
  - Yogurt | Functions as part of enzymes involved in tissue respiration.
  - Collage Cheese | Functions as part of enzymes involved in tissue respiration.
  - Sardines and Salmon with Bones | Functions as part of enzymes involved in tissue respiration.
  - Collard, Kale, Mustard, and Turnip Greens | Functions as part of enzymes involved in tissue respiration.
  - Bread, Margarine | Functions as part of enzymes involved in tissue respiration.

### Iron

- Important Sources of Nutrient | Some major physiological functions
  - Enriched Farina | Aids in utilization of energy.
  - Yeast Juice | Combines with protein to form hemoglobin, the red substance in blood that carries oxygen to and carbon dioxide from the cells.
  - Liver | Prevents nutritional anemia and its accompanying fatigue.
  - Dried Beans and Peas | Increases resistance to infection.
  - Red Meat | Functions as part of enzymes involved in tissue respiration.
FUNCTION OF VITAMINS & MINERALS

I. Function of Vitamin A in body:

A. Fat-soluble vitamin, stable to heat, body stores it, oxidation destroys it.
   1. Keeps skin and mucous membranes healthy
   2. Aids body in resisting respiratory infection
   3. Helps eyes adapt to semi-darkness and protects them against degenerative changes
   4. Vitamin A is essential in working with other nutrients in the proper growth and development of bony structures and teeth.

B. Plant sources of Vitamin A:
   1. The brighter the color, orange, yellow, and/or the darker green, the greater its Vitamin 'A' content.
   2. Rich sources:
      a. Carrots
      b. Sweet potatoes
      c. Broccoli
      d. All green leafy vegetables
      e. Apricots
      f. Tomatoes
   3. Foods rich in Vitamin A served at least three times a week.

II. Function of Vitamin C (Ascorbic Acid):

A. Water-soluble. Oxidizes readily when exposed to air and light. Destroyed more rapidly as temperature increases.
   1. Prevents scurvy - a disease recognized by softening of gums, loosening teeth, bleeding under the skin and into soft tissues. Rare in this country.
   2. Keeps capillary walls healthy. Bleeding under the skin in tiny red spots, or larger areas, is a symptom of low Vitamin C.
   3. Prevents easy bruising and promotes rapid healing of cuts and broken bones and bruises.
   4. Prevents "growing pains", or "childhood rheumatism", as well as relieving "aging pains" and some kinds of rheumatism aches.
   5. Prevents spongy gums and easy bleeding of gums.

III. Vitamin B Complex (Thiamine, riboflavin, niacin, folic acid):
Water soluble - oxidizes readily

A. Function:
   1. Normal appetite and digestion
   2. Healthy nervous system.

B. Plant Sources:
   1. Green leafy vegetables - spinach, broccoli, leaf lettuce, endive. B vitamins are more prevalent in protein foods: thiamine - pork; niacin - nuts; riboflavin - milk.
IV. Iron:

A. Function:
   1. Necessary for production of red blood cells, which transport oxygen to all body cells.
   2. Prevents anemia with its symptoms of tiredness, paleness, and weakness.

B. Plant Sources:
   1. Green leafy vegetables
   2. Dried fruits: raisins, dates and prunes; lima, soybeans, and peas.
### A GUIDE FOR USING SALAD DRESSINGS

<table>
<thead>
<tr>
<th>TYPE</th>
<th>REGULAR USE</th>
<th>AS A SAUCE</th>
<th>AS A SEASONING</th>
<th>SPECIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mayonnaise</td>
<td>Hearty meat, egg and fish salad</td>
<td>Add lemon juice and egg yolk, heat and use as mock Hollandaise with fish and egg dish.</td>
<td>Stir 2-3 T. into cream sauce for special flavor.</td>
<td>Combine with thick sour cream, minced mixed vegetables, season highly for dip with chips or toast fingers.</td>
</tr>
<tr>
<td></td>
<td>Potato salad</td>
<td>The vegetables may be marinated with French dressing before mayonnaise is added.</td>
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<tr>
<td></td>
<td>Cole slaw</td>
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<tr>
<td></td>
<td>Greens</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Vegetable mixture</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Fruit</td>
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<td></td>
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<tr>
<td></td>
<td>Gelatin</td>
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<tr>
<td></td>
<td>Lettuce &amp; tomato</td>
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<td></td>
<td>Fruit salad</td>
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<tr>
<td></td>
<td>Vegetable salad</td>
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<tr>
<td>Italian</td>
<td>Tossed salad</td>
<td>Add sautéed onion and serve hot with vegetables or kidney beans.</td>
<td>Add 1-2 T. to canned soup (particularly good with tomato or bean soup.)</td>
<td>Use as marinade on cooked vegetables (can be served cold as appetizer.)</td>
</tr>
<tr>
<td></td>
<td>Sliced cucumber and onion salad</td>
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<tr>
<td></td>
<td>Sliced tomatoes</td>
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<tr>
<td></td>
<td>Bean salad</td>
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<tr>
<td></td>
<td>Home garden salad</td>
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</tr>
<tr>
<td>Roquefort</td>
<td>Mixed green salad</td>
<td>Serve spooned over hot fluffy baked potato.</td>
<td>Add to deviled egg filling.</td>
<td>Use as part of liquid in molded salads. Mix with cream or cottage cheese for dip.</td>
</tr>
<tr>
<td></td>
<td>Tossed salad</td>
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<td></td>
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<tr>
<td></td>
<td>Citrus salad</td>
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<tr>
<td></td>
<td>Molded salad</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Egg and fish salad</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Apple salad</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE</td>
<td>REGULAR USE</td>
<td>AS A SAUCE</td>
<td>AS A SEASONING</td>
<td>SPECIAL</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------</td>
<td>------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>Russian</td>
<td>Head Lettuce Slaw Egg salad</td>
<td>Spoon over tiny hot new potatoes; top with minced onion.</td>
<td>Brush over meat or fish fillets before broiling.</td>
<td>Add to beaten egg when breading fish or shellfish.</td>
</tr>
<tr>
<td>Tartar</td>
<td>Fish and shellfish salad</td>
<td>Combine half and half with savory white sauce.</td>
<td>Spread on bread for toasted cheese sandwiches.</td>
<td>Serve on chilled broccoli, asparagus, or green beans.</td>
</tr>
<tr>
<td>Oil &amp; Vinegar</td>
<td>Toasted salad Mixed green vegetable salad Avocado Sliced tomatoes Some fruit salad</td>
<td>With broiled or fried fish fillets, cold salmon steaks and hot or cold shellfish.</td>
<td>Add 1-2 T. to hamburger or meat loaf mixture before mixing. Add 1-2 T. to hot pasta (macaroni, spaghetti, etc.) before adding sauce or cheese.</td>
<td>Heat, add chopped onion and crumbled bacon; pour over garden lettuce or add minced parsley and pour over hot thinly sliced potatoes.</td>
</tr>
<tr>
<td>Garlic</td>
<td>Caesar salad Specialty salad Plain lettuce Vegetable salad</td>
<td>With fish and egg dishes. With hot and cold vegetables. With egg plant or artichokes.</td>
<td>Brush on meat or hamburgers before broiling or roasting. Add to gravies for garlic flavor. Drizzle on long loaves of bread and heat.</td>
<td>Spread on bread slices and saute lightly; use as base for poached or scrambled eggs.</td>
</tr>
<tr>
<td>Cole slaw</td>
<td>Slaws Fish salad Macaroni salad</td>
<td>With diced hot potatoes and onions. With hot or cold cooked vegetables.</td>
<td>Add a few tablespoons to egg, fish and meat sandwich fillings; spread on fish casserole and loaves; broil quickly.</td>
<td>Combine with grated sharp cheese; freeze in molds or tray. Serve with citrus and fruit salads. Use on potato salad. Add sharp mustard and use as savory sauce with hot deviled eggs.</td>
</tr>
<tr>
<td>Thousand Island</td>
<td>Head lettuce Tossed greens</td>
<td>With fish and egg dishes.</td>
<td>Use as spread on bread for sandwiches.</td>
<td>Combine with sliced egg, relish, and sardines for antipasto. Mix with chopped egg and cheese for sandwiches.</td>
</tr>
<tr>
<td>Fruit</td>
<td>Fruit salad Avocado salad Mixed greens and fruits</td>
<td>Over gelatin dessert salads. With molded fruit and cheese salad or salad loaves. With salad-sandwich loaves.</td>
<td>Add a few tablespoons to gelatin and molded salads before they set. Spread lightly on pineapple or spiced peaches; broil and serve with meat and fish.</td>
<td>Combine with whipped cream, berries in season, diced bananas, chili; heap in melon rings and serve with thinly sliced ham.</td>
</tr>
</tbody>
</table>
**SCORECARD FOR MISCELLANEOUS SALADS**

Score product as follows:
- Very good: 4
- Good: 3
- Fair: 2
- Poor: 1

**APPEARANCE SCORE:**

**Good Characteristics:**
- Recognizable Pieces
- Well Drained
- Pleasing Color Combination

**Poor Characteristics:**
- Too many ingredients or small pieces
- Soggy or watery
- Colorless

**PALATABILITY SCORE:**

**Combinations of pleasing flavors**
- Bland
- Dressing that is too strong
- Colorless

**Combination of pleasing colors**

**TEMPERATURE AND TEXTURE SCORE:**

- Cold
- Crisp and fresh
- Room temperature
- Soggy or tough

<table>
<thead>
<tr>
<th>APPEARANCE</th>
<th>PALATABILITY</th>
<th>TEMPERATURE/TEXTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#2</td>
<td></td>
<td></td>
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<tr>
<td>#3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

325
EVALUATION OF "VEGETABLES AND SALADS WITH PIZAZZ"

1. This workshop was

2. Things I learned that I plan to use:

3. I wish I had learned

4. If I attend another workshop, I wish you would
FOOD SERVICE EMPLOYEE SHORT COURSES

Module Four--Protein Potpourri

GOALS: Upon successful completion of this module, the participant will be able to:

1. Develop basic manipulative skills related to foodservice.
2. Develop an understanding of the basic principles of science and mathematics that condition manipulative skills.
3. Demonstrate high standards of cleanliness and personal hygiene.
4. Demonstrate proficiency in artistic principles basic to food preparation.

OBJECTIVES:

LESSON ONE: ORIENTATION

1. Operate and maintain quantity foodservice equipment efficiently.
2. Demonstrate high standards of sanitation and safety.
3. Organize work efficiently.
5. Follow directions fully.
6. Utilize standardized recipes in quantity food preparation and service.

LESSON TWO: SOUPS

1. Classify the kinds of soups and stocks.
2. Prepare soups and stocks according to the correct procedure.
3. Describe the service of soups and stocks.
4. Identify important nutrients in soups.

LESSON THREE: CASSEROLES, RICE, PASTA

1. List examples of pasta
2. Describe cooking techniques used in the preparation of pasta.
3. Identify the various forms of rice.
4. Prepare rice according to the correct procedure.
5. Name popular casseroles.

LESSON FOUR: BEANS, LEGUMES

1. Identify the nutritive value of legumes.
2. Classify legumes according to protein quality.
3. Prepare legumes according to the correct procedure.
4. List menu suggestions using beans and legumes.

Developed cooperatively by Occupational Home Economics, Kansas Department of Vocational Education, Wichita Area Vocational-Technical School and members of the Kansas Dietetic Association.

An equal employment/educational institution.
LESSON FIVE: CHEESE AND EGGS

1. Classify various types of cheese.
2. List important nutrients found in cheese.
3. List the functions of eggs important in quantity food preparation.
4. Identify quality characteristics of eggs.
5. List nutrients found in eggs.
6. Prepare a cheese and/or egg dish using correct procedure.
7. Evaluate cheese and egg dishes according to qualities of a standard product.

LESSON SIX: SANDWICHES

1. List important quality characteristics of hot and cold sandwiches.
2. Name the major parts of a sandwich.
3. Prepare sandwiches according to the correct procedure.
4. Describe the service of sandwiches in a main meal.
5. List examples of popular sandwiches.
Lesson 1: Orientation, Soups and Stocks

I. Instructor preparation for class activities

A. Assemble equipment
   1. Stock pots
   2. Steam jacketed kettle
   3. Measuring and weighing equipment
   4. Cheesecloth
   5. Colander

B. Have ingredients available
   1. For preparation of Beef Stock, page 477: Food for Fifty
   2. For preparation of Chicken Stock, page 479: Food for Fifty

Instructor is to start preparation of stock 3 hours before class. During last hour of class, review preparation and demonstrate skimming and straining stock. Plan to freeze stock and meat for following lesson.

C. Duplicate sufficient copies of handouts
   1. Goals and Objectives
   2. Steam Jacketed Kettle
   3. Stock Preparation

D. Assemble student handbook information in color-coded folders

II. References

A. Dennler, Louise: Food Preparation: Study Course, The Iowa State University Press, 1971


D. Powers, Jo Marie: Basics of Quantity Food Production, John Wiley and Sons, 1979

E. West, Bessie Brooks; Shugart, Grace Severance; Wilson, Maxine: Food for Fifty, 6th Edition, John Wiley and Sons, 1979
## Lesson Content

<table>
<thead>
<tr>
<th>I. General Orientation</th>
<th>Class Activity and Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Presentation of name tags and get-acquainted activity</td>
<td>Play game for introducing participants to each other: Faculty and students tell where they work and their favorite casserole.</td>
</tr>
<tr>
<td>1. Introduce faculty and students</td>
<td>Ask students what they want to learn about soups, sandwiches, stews and casseroles. As much as possible, incorporate those requests into this module.</td>
</tr>
<tr>
<td>2. Complete enrollment procedure</td>
<td>Instructor list on board participants' ideas for meat extended dishes and for meat alternate dishes and discuss acceptability of these dishes for various clients.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Orientation to the course</th>
<th>Overview of course. Discuss Handout 1: Goals and Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Purpose of the course--Introduction and overview</td>
<td>Explain that other employees will be using this kitchen and expect it to be clean and orderly.</td>
</tr>
<tr>
<td>2. Definitions</td>
<td>Review handouts in student handbook</td>
</tr>
<tr>
<td>a. A meat extender is added to meat to provide more servings.</td>
<td>Assign participants into teams, according to number in class and class activities. Use color-coded folders or colored name tags.</td>
</tr>
<tr>
<td>b. A meat alternate is a food which is not meat but contains many of the nutrients of meat, especially protein</td>
<td>Review &quot;Team Duties&quot;.</td>
</tr>
<tr>
<td>Example: soybeans, cheese</td>
<td>Outline general activity of this class period. Participants demonstrate proper handwashing procedures.</td>
</tr>
<tr>
<td>3. Learn by doing, preparation and display</td>
<td>Participants demonstrate filling of sinks, measuring sanitizer, etc.</td>
</tr>
<tr>
<td>4. Learn some scientific principles of food preparation</td>
<td>Participants demonstrate method of cleaning and sanitizing work surfaces, washing and storing utensils.</td>
</tr>
<tr>
<td>5. Evaluate finished products using score cards</td>
<td></td>
</tr>
<tr>
<td>6. Importance of clean-up, sanitation and safety practices.</td>
<td></td>
</tr>
<tr>
<td>7. Meeting place and times</td>
<td></td>
</tr>
<tr>
<td>8. Certificate of completion--grade if given</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. Orientation to facility</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Building rules and policies</td>
<td></td>
</tr>
<tr>
<td>2. Location of restrooms and smoking areas</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D. Student handbook</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dress code, personal conduct, food handling, sanitation and safety checklists</td>
<td></td>
</tr>
<tr>
<td>2. Procedure for tasting food--tasting spoon</td>
<td></td>
</tr>
<tr>
<td>3. Use of textbook, note taking and handouts</td>
<td>Assign participants into teams, according to number in class and class activities. Use color-coded folders or colored name tags.</td>
</tr>
<tr>
<td>4. Organization of class into teams</td>
<td>Review &quot;Team Duties&quot;.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E. Tour kitchen and work area</th>
<th>Outline general activity of this class period. Participants demonstrate proper handwashing procedures.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Emphasize handwashing rules and locate handwashing sinks</td>
<td>Participants demonstrate filling of sinks, measuring sanitizer, etc.</td>
</tr>
<tr>
<td>2. Review 3-sink method of ware-washing in student handbook</td>
<td>Participants demonstrate method of cleaning and sanitizing work surfaces, washing and storing utensils.</td>
</tr>
<tr>
<td>3. Discuss sanitary procedures for washing and storing equipment and utensils</td>
<td></td>
</tr>
<tr>
<td>a. Instructor will establish policy for returning utensils and ingredients to storage areas</td>
<td></td>
</tr>
<tr>
<td>4. Note location and use of range top, ovens, steam jacketed kettle</td>
<td></td>
</tr>
</tbody>
</table>
### LESSON CONTENT

#### II. Use of equipment

A. Demonstrate use of scales and measuring equipment in preparation of beef stock (to be frozen until next class period)

B. Discuss handout 4:1 Steam Jacketed Kettle

C. Discuss preparation of stocks

#### III. Safety principles related to fire safety

- Standardized recipe—definition—discuss use of standardized recipes in quantity cooking

- Format of recipes

- Select soup recipes from Food for Fifty to be prepared in next class

- Adjust recipes for desired number of servings.

Instructor complete demonstration of beef and chicken stocks

Prepare market order for next class.

**Assignment:**

* Students start recipe file of recipes related to this module

* Distribute glossary if used

### CLASS ACTIVITY AND EVALUATION

See beef stock recipe, *Food for Fifty*, page 477

Participants demonstrate skill in using scales, measuring cups and spoons for dry and liquid ingredients.

Discuss Handout 3: Stock Preparation

Show film on fire safety and demonstrate use of fire extinguisher.

Examine *Food for Fifty*, 6th ed. Look up sections on soups, p. 476; sauces, p. 457


Special project over next 5 classes—for a collage, collect pictures of soups, stews, casseroles and sandwiches, including rice, pasta and legumes, cheese and eggs.

Also see glossary, page 78 of *Food for Fifty*.
STEAM JACKETED KETTLE

The steam jacketed kettle is fast, safe, economical, and easy to use. Steam enters the jacket and comes into contact with the cold inner wall. The steam condenses (the vapor changes into liquid), conducting its heat through the wall and into the product being cooked. The steam jacketed kettle is used to braise, boil, or simmer. The kettles range in size from the 10 quart table model to the 200 gallon floor or wall model.

To operate the steam jacketed kettle, turn the boiler on and wait for the pressure to reach the proper level. Open the water valve. For electric and gas self-contained kettles, keep the water at the half-way level in the gauge glass. For kettles requiring the addition of water, fill the jacket according to the manufacturer's instructions. Check the safety valve. For the electric or direct steam kettle, turn on the steam valve or electric switch. For the gas kettle equipped with a pilot, turn on the main burner valve. (If the pilot goes out, check with your supervisor.) Adjust the heat or steam to the proper temperature and pressure. Add the food to be cooked.

When cooking is completed, turn off the steam valve and remove the food from the kettle. Fill the empty kettle with warm water above cooking level until it is time to clean the kettle. The warm water loosens food from the inside walls of the kettle.

To clean the steam jacketed kettle, open the drain valve and drain the water from the kettle. The food particles are caught in the screen that covers the draining device. Scrub the inside of the kettle with a brush, warm water, and detergent. Scrub the underside of the lid and hinges. Use the same water and detergent solution to clean the legs, pipes, and outside of the kettle. Drain the soapy water. Fill the kettle 1/3 full with warm water and rinse the inside and the outside of the kettle. Drain the rinse water from kettle. Wipe the kettle dry with a soft cloth and leave the lid open.

Safety precautions when using the steam jacketed kettle include:

1. Guard against possible steam burns when raising the kettle lid; lift the lid away from you so that steam does not scald hands, arms, or face.
2. See that the proper water level is maintained in the water jacket.
3. If the water jacket has gone dry, do not add water to the jacket without first allowing the kettle to cool.
4. Be certain that the safety valve is in good working order.
5. If the steam pressure rises above the safety level, turn the kettle off and call a reliable service organization.
6. To prevent burns, use long-handled paddles for stirring and long-handled dippers for removing food.

Stock Preparation

A. Most soups start with a richly flavored stock.
   1. Flavors for stock usually come from beef, chicken, ham and fish.
   2. Commercially prepared stock base is available.

B. There are three stock classifications.
   1. Brown - Made from browned meat and cracked bones of beef with vegetables added.
   2. White - Made from flesh and bones of veal and chicken that have not been browned.
   3. Light - Made from browning only one-half of the flesh and bones.

C. Stock should be made according to the correct procedure.
   1. Choose ingredients.
      a) Cut bones (shank, neck, knuckle or fowl carcass) into three- to four-inch pieces so the water can draw out the nutritive and flavor-giving substances.
      b) Cut meat into small pieces to draw out the flavors.
      c) Six pounds of meat and bones are needed for each gallon of stock.
      d) One pound of mixed vegetables (celery, onion, carrots and turnips) in five quarts of salted water are used to make one gallon. A bouquet of bay leaf, marjoram, thyme and parsley can be added for flavor.
   2. In order to get the best flavor, start the meat and bones in cold or warm water and slowly bring to a slow simmer (180° to 185°F). Cook six to eight hours for beef, four hours for veal and chicken, and one and one-half hours for fish.
   3. After cooking, remove bones using a colander.
   4. Cool the stock quickly in a water bath by stirring. Refrigerate at 36° to 40° F.
   5. Clarify by removing congealed fat and pouring off the top liquid leaving the sediment in the bottom. The stock is now ready to add to the other soup ingredients to make appetizer soups or main dish soups.
Lesson 2: Soups and Sauces

Module 4: Protein Potpourri

I. Instructor preparation for class activities

A. Assemble Equipment

B. Have ingredients available to prepare recipes selected by instructor to demonstrate stock soups and cream soups

C. Duplicate sufficient copies of handouts.
   1. Soup vocabulary
   2. Stock vocabulary
   3. Soups
   4. Back to Soup
   5. White sauce

D. Textbook: Each student should have access to a copy of Food for Fifty for the remainder of this short course.
## Lesson 2: Soups and Sauces

### Module IV: Protein Potpourri

#### Lesson Content

<table>
<thead>
<tr>
<th>I. History of soups—each nationality has favorites</th>
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<tbody>
<tr>
<td>II. Classification of soups</td>
</tr>
<tr>
<td>A. Milk or stock base, light or dark</td>
</tr>
<tr>
<td>B. Clear and light or thick and hearty</td>
</tr>
<tr>
<td>C. Served hot or cold</td>
</tr>
<tr>
<td>D. According to place on menu</td>
</tr>
<tr>
<td>1. Appetizer—served in small quantity (6 ounces)</td>
</tr>
<tr>
<td>a. First course preceding a full meal</td>
</tr>
<tr>
<td>b. Meat extracts stimulate appetite</td>
</tr>
<tr>
<td>Examples: Consomme Bouillon Broth</td>
</tr>
<tr>
<td>2. Hearty main dish soups</td>
</tr>
<tr>
<td>a. Served for luncheon or supper</td>
</tr>
<tr>
<td>b. Take the place of an entree</td>
</tr>
<tr>
<td>c. Should be as satisfying as a casserole or stew</td>
</tr>
<tr>
<td>d. May complement salad or sandwich and dessert</td>
</tr>
<tr>
<td>e. 8-10 ounce serving provides substantial nutrition</td>
</tr>
<tr>
<td>f. Examples: Bisque Chowder Gumbo Etc.</td>
</tr>
<tr>
<td>3. Salad and Dessert Soups</td>
</tr>
<tr>
<td>a. Gaspacho</td>
</tr>
<tr>
<td>b. Fruit soups: Swedish Chinese orange soup</td>
</tr>
<tr>
<td>III. Preparation of stock soups</td>
</tr>
<tr>
<td>A. Stock is made by simmering meat, poultry, fish and/or vegetables in water to extract their flavor</td>
</tr>
<tr>
<td>1. Brown stock, White stock—whether meat is browned</td>
</tr>
<tr>
<td>2. Mirepoix—a mixture of vegetables</td>
</tr>
<tr>
<td>3. Clarification of stock</td>
</tr>
</tbody>
</table>

#### Class Activity and Evaluation

| Students name favorite ethnic soups |
| List examples on board |
| Discuss Handout 1: Soup Vocabulary |
| Examine soup and stew recipes: Food for Fifty |
| Students discuss characteristics of hearty soups |

Handout 2: Stock Vocabulary
Class discussion of preparation of beef, chicken, fish and ham stocks and recipes using these stocks
### LESSON CONTENT

4. Fish stock  
5. Ham stock  
6. Alternate--use of commercial soup bases

B. Variations of stock soups

C. Standards  
1. Clear  
2. Flavorful  
3. Appropriately colored--deep brown to almost colorless

D. Thickening soup  
1. Addition of plain starch or roux  
2. Addition of vegetable, meat or fish puree  
3. Combining puree, roux and cream

E. Compare cost of commercial and non-commercial beef bases

IV. Preparation of cream soups

A. Basic sauce for cream soup  
   1. Methods of preparation of white sauce  
      a. Saucepan  
      b. Double boiler  
      c. Steamer  
      d. Microwave  
   2. Thickness of white sauce  
   3. Characteristics of high quality white sauces

V. Soup accompaniments, garnishes for flavor, decoration to complete a meal, salad, sandwich or bread

VI. Serving soups--temperature  
A. Hot--150°-160° F.  
B. Cool--40°-45° F.

VII. Evaluation of soups

VIII. Plan items to be prepared in following class

### CLASS ACTIVITY AND EVALUATION

See Variations, pages 476-478: Food for Fifty

Prepare 2 soups from beef stock. Examples:  
Beef Barley  
Minestrone  
Pepper Pot Soup

Prepare 2 soups from chicken stock. Examples:  
Mulligatawny Soup, page 483: Food for Fifty  
Chicken Rice Soup, page 485: Food for Fifty

Use Handout 4: Back to Soup

Handout 5: White Sauce  
Prepare 2 cream soups. Examples:  
Cheese soup  
Cream of vegetable soup  
Chicken velvet soup  
Corn chowder  
Cream of tomato soup

Participants taste soups at various temperatures

Handout 6: Scorecard for Soups
Soup Vocabulary

Bisque--Thick, rich cream soup usually made from shellfish such as lobster and shrimp.

Borsh--Russian beet soup made with beef stock, beets, tomatoes, sour cream, and seasoning.

Bouillabaisse--Fish soup or stew made with five or six different fish or shellfish, flavored with white wine and seasoned with saffron.

China Cap--Long pointed strainer used for straining sauces, soups, stocks and other liquids or semi-liquids.

Chowder--Thick soup of fish or vegetables with milk and potatoes.

Cold Soups--Soups classed according to their consistency and served cold. Examples are jellied consomme and vichyssoisse.

Consomme--Clear broth made with chicken, veal or other meat.

Madrilenne--Clear consomme with a tomato flavor that can be served jellied or hot.

Skimmer--Flat, stainless steel perforated disk connected to a long handle used to skim grease or food particles from soups, stock, or sauces.

Special Soups--Includes all soups originating in a certain location and associated with that place. Examples are New England clam chowder and French onion soup.

Thick Soup--Soups which derive thickness from products added to the stock, or from pureed vegetables. Examples are cream soups, chowders and bisques.

Thin Soup--Clear, rich liquid prepared without the use of a thickener. Examples are French onion and tomato madrilenne.

Vichyssoisse--Cream of potato soup served cold.
Stock Vocabulary

Bouillon--Clear white meat stock.

Bouquet Garni--Aromatic herbs such as parsley, thyme, bay leaf and rosemary, tied together and cooked with soups, sauces and gravies for flavoring.

Clarify--Make clear by skimming or by adding egg white and straining.

Crack Bones--Cut into small pieces with a meat saw to expose more surface to cooking area.

Garnish--Cleaned, rough-cut, raw vegetables cooked with stock for flavor.

Raft--Coagulated mass which rises to the top of a soup stock pot which must be removed with a skimmer.

Stock--Liquid in which meat or meat bones, fish or fish bones and/or vegetables have been cooked to extract flavor. There are four main stock types: brown, chicken, fish and white.

Stock Pot--Large, round, high-walled pot made of metal used for boiling and simmering items. Sizes range from 2 1/2 gal. to 40 gal.

SUMMARY

Extracting liquefiable foods is the basis of stock, sauce, and soup cookery. The difference between a sauce or a soup very often lies in its texture only. The principles of making cream soups are like the ones of making sauces. Sauces have a more intense flavor than soups, if sauces and soups of the same raw ingredients are compared. The addition of starch changes a clear liquid to a thickened one. For the sake of quality, Western cuisine uses a starch-fat combination, cooked for a little while, called roux. Sauces are classified into four basic roux sauces and one egg yolk-butter sauce called Hollandaise. Sauce cookery can be compared to bar mixing. The five basic sauces are changed with the addition of different wines, liquors, cream, cheeses, herbs, spices, condiments, and special cut garnishes into a hundred different sauces. These are highly cherished by Western luxury cuisine. Sauce Hollandaise, the fifth of the basic or mother sauces, is the only one not based on starch. The texture of this sauce comes through the emulsification of fat and egg yolks, which enclose fine air bubbles, instead of the saturation of starch granules with liquid. Sauces based on eggs have a limited holding time and must be made fresh whenever needed.

Sauce and soup cookery have a definite structure. Thus, they are easy to master and practice. Most important are the personal standard of understanding how a sauce should look and taste, the use of fresh quality ingredients, and careful, systematic work. Just as in all the other fields of cookery, the same principles are used over and over again.
ASSIGNMENT SHEET #1--COMPARE COST OF COMMERCIAL AND NONCOMMERCIAL BEEF BASES

Yield = Actual gallons of product produced

Cost of product =
   A. Cost of one can commercial beef base
   B. Cost of beef shank

Cost per gallon = Cost of product — yield

Labor hours = Hours needed to prepare product

Hourly rate = Wages paid per hour

Total labor cost = Labor hours x rate

Labor cost per gallon of stock = Labor cost — yield

Total cost per gallon = Cost of product per gallon + labor cost per gallon

Discussion questions

1. Do you pay for convenience? Yes____ No____

2. If you had your choice of product which would you prefer? ____________________________ Why? ____________________________

<table>
<thead>
<tr>
<th></th>
<th>Commercial</th>
<th>Beef shank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield</td>
<td>______ per can</td>
<td>______</td>
</tr>
<tr>
<td>Cost of product</td>
<td>______ per can</td>
<td>______ total</td>
</tr>
<tr>
<td>Cost per gallon</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>Labor hours</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>Hourly rate</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>Total labor cost</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>Labor cost per gallon stock</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>Total cost (Add #3 and #7)</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>#3</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>#7</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>Total cost per gallon</td>
<td>______</td>
<td>______</td>
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</tbody>
</table>
STRUCTURE OF SOUPS

Food in a more liquid than solid state, eaten with a spoon, is called soup. Soups are well liked by the public because they are easy to eat and digest. They are filling, nourishing, and not costly.

Soups probably began as kettle stews. Many of today's regional specialty soups clearly indicate such a development.

For the cook, soups are easy to make when modern equipment is used with an understanding of the structure of soups. Soups can be grouped into clear soups or thickened soups.

Clear Soups

Clear soups may be unclarified plain broth or clarified consomme. Broth is leftover liquid from the boiling of protein foods. For a better flavor, vegetables are added to the broth. Vegetable broth is used too, but seldom as a single flavor. Other flavor-giving ingredients are even added to tomato soup. In home cookery, vegetable soups are made without meat additives. Commercial cookery boasts even vegetable flavors with some kind of protein stock.

Consomme. Consomme is clarified broth or stock; its strength is improved with extra vegetables and proteins. It is served either clear or with a garnish. The garnish may be cooked with the soup, as in "Consomme Julienne", or prepared completely extra and added to the finished soup at the last minute, as in "Consomme Celestine".

Thickened Soups

Thickened soups are grouped by 1) the addition of plain starch or roux for better flavor and texture, 2) the addition of a vegetable, meat or fish pulp (puree) for thickening, 3) the combining of puree, roux and, for absolute refinement, cream. Thickened soups, just as clear soups, can be served strained and plain, or they may have a garnish prepared in the same way as for the consomme.

TABLE 21-7 FLOWCHART OF SOUPMAKING
**White Sauce**

<table>
<thead>
<tr>
<th>Type</th>
<th>Milk</th>
<th>Flour</th>
<th>Fat</th>
<th>Salt</th>
<th>Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thin</td>
<td>1 cup</td>
<td>1 tablespoon</td>
<td>1 tablespoon</td>
<td>1/4 teaspoon</td>
<td>soups</td>
</tr>
<tr>
<td>Medium</td>
<td>1 cup</td>
<td>2 tablespoons</td>
<td>2 tablespoons</td>
<td>1/4 teaspoon</td>
<td>sauces; gravies</td>
</tr>
<tr>
<td>Thick</td>
<td>1 cup</td>
<td>3 tablespoons</td>
<td>3 tablespoons</td>
<td>1/2 teaspoon</td>
<td>souffles</td>
</tr>
<tr>
<td>Very thick</td>
<td>1 cup</td>
<td>4 tablespoons</td>
<td>4 tablespoons</td>
<td>1/2 teaspoon</td>
<td>croquettes</td>
</tr>
</tbody>
</table>

**METHODS OF PREPARATION**

**Method I. Saucepan or Frying Pan**
1. Melt fat in saucepan or heavy frying pan.
2. Add flour and salt: blend until smooth.
3. Remove from heat.
4. Add milk in small portions and blend thoroughly after each addition until all milk has been added.
5. Place over direct heat: stir constantly: bring to a boil and boil for 1 minute.
6. Record total working time: __________ minutes.

**Method II. Double Boiler**
1. Melt fat in the upper part of the double boiler. Have the upper section of the double boiler over hot water.
2. Add flour and salt: blend until smooth.
3. Add milk gradually: stir thoroughly after each addition of milk.
4. Continue heating with occasional stirring until the mixture has thickened. Heat an additional 5 minutes after the sauce has thickened to insure gelatinization of the starch.
5. Record total working time: __________ minutes.

**Method III. Can Be Used Where a Low-fat Product Is Desired.**
1. Blend the flour and salt with 1/4 cup of the cold liquid. Stir until all lumps of flour have been separated.
2. Add the remaining milk. Stir thoroughly.
3. Place the mixture in a saucepan over direct heat: stir constantly until the mixture boils: boil for 1 minute.
4. As the mixture boils, add approximately half the indicated amount of fat for type of sauce being prepared: stir thoroughly until the fat is blended into the sauce.
5. Record total working time: __________ minutes.

*Fat may be omitted entirely if desired. This method is not recommended when the full amount of fat is to be used: it is extremely difficult to add full amount of fat.

**CHARACTERISTICS OF HIGH QUALITY WHITE SAUCES**

**Appearance:** White to creamy (dependent on type and amount of fat used); opaque.

**Consistency:** Smooth; even starch distribution and gelatinization.

*Thin:* Like "thin cream"; flows freely.

*Medium:* Fluid, but thick; flows slowly; like "whipping cream" before whipping.

*Thick:* Thick; holds imprint of spoon or slightly "mounds" on stirring.

*Very Thick:* Will not flow; holds cut edge, even while warm.

**Flavor:** Very bland, mild; fat used may affect the flavor.
### Scorecard for Soups

<table>
<thead>
<tr>
<th>Soup</th>
<th>Appearance</th>
<th>Consistency</th>
<th>Flavor</th>
</tr>
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<tbody>
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</table>

### SOUPS

**Standard product:**
1. Pleasing in taste and texture—good body
2. Flavor must be well blended
3. If type indicates a clear soup, then product should be clear, bright, and sparkling
4. Consistency of cream soup varies with individual taste, but for the most part cream soups are the consistency of thin white sauce, while chowders and bisques are much thicker.
5. Appearance as well as taste should show evidences of richness.
6. Appropriate garnishes

**Defects:**
- Poor color—dull, presence of sedimentation
- Ingredients overcooked and mushy
- Appearance and flavor give impression of watery product
- Curdled soups
- Too thick cream soups
- Excess fat on stock soups
- Under or over seasoned—not characteristic of type or kind
Lesson 3. Casseroles with Rice and Pasta.

I. Instructor preparation for class activities

A. Assemble equipment
   1. Filmstrip projector and cassette tape player
   2. Equipment necessary to prepare rice and pasta recipes selected by students

B. Have ingredients available to prepare recipes selected. See recipes suggested for this lesson.

C. Duplicate sufficient copies of handouts
   1. Measurements and Yields for Various Types of Rice
   2. Pasta or "Macaroni Foods"
   3. Cooking Pasta
   4. Success Indicator: Main Dish Score Card

D. Obtain filmstrip on Bread and Cereal group of the Basic Four Food Groups, such as Food for Life by Tupperware.
**LESSON CONTENT**

**I. Rice**

A. **Forms**
   1. Brown
   2. Milled, white
   3. Parboiled, such as "Uncle Ben's"
   4. Precooked, instant, "Minute Rice"

B. **Nutritional contribution--Basic food groups**

C. **Cooking methods for rice**
   1. Correct measurement of rice and water result in fluffy rice
      a. Too little water--rice will be hard, small in volume
      b. Too much water--sticky
   2. Some cooks warm rice in fat or oil before adding water
   3. Rice increases in volume to three times its original size
      Do not wash rice; it washes away some vitamins and minerals

D. **Casseroles and other menu items containing rice--adjust recipes for items to be prepared**

E. **Reheating rice**

**II. Pasta--Alimentary Paste**

A. **Examples**
   1. Spaghetti, macaroni--60 or more varieties
   2. Can be used interchangeably, weight for weight
   3. Made from high gluten durum wheat
   4. Noodles contain at least 5.5 percent by weight of egg or egg yolk solids

B. **Cooking techniques**
   1. Use large volume of salted, rapidly boiling water. Oil may be added to prevent foaming
   2. Time carefully--done at tender, yet firm stage; al dente

---

**CLASS ACTIVITY AND EVALUATION**

Students examine samples of these forms of rice

Show Bread and Cereal filmstrip from *Food for Life, Tupperware*

Prepare brown and white rice in oven, steam-jacketed kettle, on top of stove and in microwave

See Handout 1: Measurements and Yields for Various Types of Rice

Prepare Rice Pilaff, page 191: *Food for Fifty*
Prepare Spanish Rice, page 193: *Food for Fifty*
Prepare Brown Rice and Spinach Casserole
Prepare Fried Rice, page 191: *Food for Fifty*

Show pictures of different kinds of pasta

Handout 2: Pasta or "Macaroni Foods"

See Cooking Macaroni, Spaghetti or Noodles, page 191: *Food for Fifty*

Handout 3: Cooking Pasta
LESSON CONTENT

3. Rinse, hold in colander over hot water
4. Pasta increases in volume to twice its original size

C. Nutrients found in pasta
   1. Describe difference in nutritional content of rice, pasta, and noodles
   2. Fortified macaroni has protein added in the form of soy flour. One ounce in dry form equals one ounce protein

III. Casseroles
   A. Types
   B. Nutritional contribution; compare with meat, potato, vegetable meal
   C. Cost

IV. Evaluate prepared products

V. Plan items to be prepared in the following class
   Adjust recipes
   Prepare market order

CLASS ACTIVITY AND EVALUATION

Discuss characteristics of well-prepared pasta

Prepare Poppy Seed Noodles, page 194: Food for Fifty
Prepare Noodles Romanoff, page 194: Food for Fifty

Plan menus using a variety of pasta dishes
Students describe popular casseroles served in their institution and share recipes

Cost a recipe for a popular casserole

Handout 4: Success Indicator: Main Dish Score Card

353
### MEASUREMENTS AND YIELDS FOR VARIOUS TYPES OF RICE

<table>
<thead>
<tr>
<th>Type of Rice</th>
<th>Uncooked Rice</th>
<th>Liquid*</th>
<th>Salt</th>
<th>Butter, Margarine, or Oil</th>
<th>Approx. No. of 1/3 cup servings</th>
<th>Approx. Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parboiled Rice (or Brown Rice)</td>
<td>1½ qts.</td>
<td>3½ qts.</td>
<td>2½ tbsps.</td>
<td>¼ cup (2 ozs.)</td>
<td>50</td>
<td>1½ gals.</td>
</tr>
<tr>
<td></td>
<td>(2 lbs. 14 ozs.)</td>
<td>1¼ gals.</td>
<td>¼ cup</td>
<td>(2 ozs.)</td>
<td></td>
<td>2 gals.</td>
</tr>
<tr>
<td>Regular-Milled White Long Grain Rice</td>
<td>2 qts.</td>
<td>1 gal.</td>
<td>2½ tbsps.</td>
<td>¼ cup (2 ozs.)</td>
<td>50</td>
<td>1½ gals.</td>
</tr>
<tr>
<td></td>
<td>(3 lbs. 4 ozs.)</td>
<td></td>
<td>¼ cup</td>
<td>(2 ozs.)</td>
<td></td>
<td>2 gals.</td>
</tr>
<tr>
<td></td>
<td>2⅛ qts.</td>
<td>1⅛ gals. + 2 cups</td>
<td>¼ cup</td>
<td>(2 ozs.)</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>(4 lbs. 8 ozs.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular-Milled White Medium Grain Rice</td>
<td>2½ qts.</td>
<td>1 gal.</td>
<td>2½ tbsps.</td>
<td>¼ cup (2 ozs.)</td>
<td>50</td>
<td>1½ gals.</td>
</tr>
<tr>
<td></td>
<td>(4 lbs.)</td>
<td></td>
<td>¼ cup</td>
<td>(2 ozs.)</td>
<td></td>
<td>2 gals.</td>
</tr>
<tr>
<td></td>
<td>3 qts.</td>
<td>1¼ gals.</td>
<td></td>
<td></td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>(4 lbs. 14 ozs.)</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

* Liquids other than water which can be used include: chicken stock, beef broth, bouillon, consomme; or tomato, vegetable juice, fruit juices such as orange or apple (1 part water, 1 part juice); or maraschino cherry juice (3 parts water, 1 part juice).

**NOTE:** For drier, fluffier rice, use 1 to 2 cups less liquid for each quart of uncooked rice.

---

**STOCKPOT METHOD**

Combine ingredients in stockpot and bring to a boil over high heat. Stir once or twice. Cover with a tight-fitting lid or heavy-duty foil. Lower heat to simmer; cook, without removing lid, 15 minutes (20 to 25 minutes for parboiled rice, 45 minutes for brown rice). If rice is not quite tender or liquid is not absorbed, replace lid and cook 2 to 4 minutes longer. Remove from heat and transfer immediately to shallow pan(s). Keep warm until served.

**STEAM-JACKETED KETTLE-METHOD**

Follow manufacturer's directions. When rice is done, transfer immediately to shallow pan(s). Keep warm until served.

**OVEN METHOD**

Use boiling liquid. Place ingredients in shallow pan(s), stir. Cover with tight-fitting lid or foil and bake at 350° for 25 to 30 minutes (30 to 40 minutes for parboiled rice; 1 hour for brown rice).

**STEAMER METHOD**

Use boiling liquid. Place ingredients in steamer pan(s) or steam table pan(s); stir. Place uncovered pan(s) in steamer and cook according to manufacturer's directions. Or, using 5 to 10 pounds pressure, cook 10 to 15 minutes (15 to 20 minutes for parboiled rice or brown rice).

**To hold rice for short periods** (up to 1 hour), turn it immediately into shallow pan(s), cover, and keep warm. One-half cup melted butter or margarine or oil stirred into each gallon of cooked rice will help keep the grains separate.

**Special formula for extended holding and transporting:** use only 1-3/4 measures of liquid to 1 measure of uncooked rice. Cook, covered, for 20 minutes for all methods. For oven method, use a temperature of 450° to 500°. Hold, covered, for at least 1 hour, at 140° to 160°. It may be held up to 4 hours. This formula applies to parboiled and regular-milled white long grain rice. For regular-milled white medium grain rice use only 1-1/2 measures of liquid to 1 measure of uncooked rice.

**To refrigerate rice,** cover. To reheat, add one-half cup liquid per quart of cooked rice.
PASTA AND "MACARONI FOOD" PRODUCTS ARE GENERAL TERMS DESCRIBING MACARONI, SPAGHETTI, AND NOODLE PRODUCTS.

PASTA IS PRIMARILY MADE FROM A HARD WHEAT VARIETY KNOWN AS DURUM.

PASTA MADE FROM DURUM RETAINS ITS SHAPE AND FIRM TEXTURE WHILE COOKING.

The package label will tell if the pasta is made from DURUM.

TO MAKE PASTA, WHEAT FLOUR AND WATER ARE MIXED INTO A DOUGH. EGGS ARE ADDED WHEN NOODLES ARE MADE.

MACHINES FORM THE DOUGH INTO OVER 170 SHAPES AND SIZES.

Macaroni is usually hollow tubes. Elbow macaroni is short and curved.

Spaghetti is long, thin, solid rods.

Spaghettini is thinner than regular spaghetti.

Vermicelli is the thinnest.

Short curved spaghetti is also available.

Shell macaroni is shaped like sea shells.

Noodles are flat, ribbon-like strips of varying widths.

Some noodles are shaped like bows.

Some noodles are shaped like letters of the alphabet.
# COOKING PASTA

**USE AMOUNTS OF INGREDIENTS RECOMMENDED ON THE PASTA PACKAGE. WITH EXPERIENCE YOU MAY FIND THAT A LITTLE LESS WATER (AND SALT) IS NEEDED FOR SMALLER PIECES OF PASTA.**

<table>
<thead>
<tr>
<th>WHAT TO DO</th>
<th>TIMELY TIPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMBINE IN DEEP SAUCEPAN WATER, SALT, AND OIL.</td>
<td>OIL HELPS KEEP PASTA FROM STICKING AND FROM FOAMING.</td>
</tr>
<tr>
<td>BRING WATER TO A FULL, ROLLING BOIL.</td>
<td>TO FIT LONG SPAGHETTI INTO A MEDIUM-SIZE PAN, PLACE ONE END OF THE SPAGHETTI STRANDS IN THE BOILING WATER. AS THE SPAGHETTI SOFTENS, GRADUALLY COIL THE STRANDS AROUND THE PAN UNTIL THEY ARE COMPLETELY UNDER THE WATER.</td>
</tr>
<tr>
<td>ADD PASTA GRADUALLY TO RAPIDLY BOILING WATER SO THAT BOILING DOES NOT STOP.</td>
<td>STIR TO BE SURE QUICK WETTING OF ALL SURFACES TAKES PLACE, AND TO KEEP PASTA FROM STICKING TO PAN.</td>
</tr>
<tr>
<td>LEAVE PAN UNCOVERED.</td>
<td>IT IS THE FREE CIRCULATION OF THE PASTA IN THE WATER WHICH PREVENTS STICKING TOGETHER AND PROMOTES UNIFORM COOKING.</td>
</tr>
<tr>
<td>STIR OCCASIONALLY.</td>
<td>BE CAREFUL NOT TO OVERCOOK PASTA; OVERCOOKING MAKES IT SOFT AND UNAPPETIZING.</td>
</tr>
<tr>
<td>COOK PASTA UNTIL TENDER; YET FIRM. CONSULT DIRECTIONS ON PACKAGE FOR COOKING TIME.</td>
<td>COOK PASTA TWO-THIRDS THE NORMAL COOKING TIME IF IT IS TO BE USED IN A COMBINATION DISH THAT NEEDS FURTHER COOKING.</td>
</tr>
<tr>
<td>TO TEST FOR DONENESS, PRESS A PIECE OF THE PASTA WITH A FORK OR SPOON AGAINST THE SIDE OF THE PAN. PASTA SHOULD BREAK EASILY AND CLEANLY WHEN DONE.</td>
<td>IF COOKED PASTA TENDS TO STICK TOGETHER, ADD A SAUCE OR A LITTLE FAT OR OIL.</td>
</tr>
<tr>
<td>DRAIN PASTA AT ONCE IN A COLANDER OR STRAINIR, DO NOT RINSE PASTA AFTER COOKING.</td>
<td>PASTA IS BEST, OF COURSE, WHEN COOKED JUST BEFORE IT IS TO BE SERVED OR COMBINED WITH OTHER INGREDIENTS. BUT, IF IT MUST BE COOKED AHEAD OF TIME, KEEP IT HOT IN A STRAINER OVER HOT WATER. THE STEAM WILL REDUCE STICKING.</td>
</tr>
</tbody>
</table>
**SUCCESS INDICATOR — MAIN DISH SCORE CARD**

Score your main dish perfect (16) if they have all the qualities listed above each section in this chart. If less than perfect, check it accordingly: GOOD, FAIR, or POOR.

### APPEARANCE SCORE:
Looks appealing on the serving line, appropriate color, easily served, attractive portion when served.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERFECT</td>
<td>4</td>
</tr>
<tr>
<td>GOOD</td>
<td>3</td>
</tr>
<tr>
<td>FAIR</td>
<td>2</td>
</tr>
<tr>
<td>POOR</td>
<td>1</td>
</tr>
</tbody>
</table>

**POOR CHARACTERISTICS:**
- Color is not appealing
- Difficult to serve
- Sloppy portion when served

**HERE'S WHY:**
- Over or under cooked
- Unsatisfactory consistency
- Carelessly served

### FLAVOR AND AROMA SCORE:
Tempting aroma, pleasing flavor, well seasoned.

<table>
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<tr>
<td>PERFECT</td>
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<tr>
<td>FAIR</td>
<td>2</td>
</tr>
<tr>
<td>POOR</td>
<td>1</td>
</tr>
</tbody>
</table>

**POOR CHARACTERISTICS:**
- Bland or flavorless
- Too salty or spicy

**HERE'S WHY:**
- Insufficient seasoning
- Too much seasoning

### TEXTURE SCORE:
Appropriate texture, (i.e. crisp, tender).

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERFECT</td>
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<tr>
<td>FAIR</td>
<td>2</td>
</tr>
<tr>
<td>POOR</td>
<td>1</td>
</tr>
</tbody>
</table>

**POOR CHARACTERISTICS:**
- Tough
- Soggy
- Hard, Dry

**HERE'S WHY:**
- Length of holding time too long
- Overcooked

### CUSTOMER APPEAL SCORE:
Well accepted by customers.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERFECT</td>
<td>4</td>
</tr>
<tr>
<td>GOOD</td>
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</tr>
<tr>
<td>FAIR</td>
<td>2</td>
</tr>
<tr>
<td>POOR</td>
<td>1</td>
</tr>
</tbody>
</table>

### CHARACTERISTICS OF HIGH QUALITY ALIMENTARY PASTES (PASTA)
- **Appearance:** Distinct strands or pieces.
- **Tenderness:** Tender; little resistance to bite.
- **Flavor:** Bland; noodles may have a slight egg flavor.

### CHARACTERISTICS OF HIGH QUALITY COOKED RICE
- **Appearance:** Grains intact; white, translucent.
- **Texture:** Grains firm, but tender; fluffy.
- **Flavor:** Bland.
Lesson 4: Beans, other legumes, nuts and textured vegetable protein

I. Instructor preparation for class activities

A. Assemble equipment
   1. Filmstrip projector and cassette tape player

B. Have ingredients available to prepare recipes included in this lesson.

C. Duplicate sufficient copies of handouts
   1. Combining foods to increase protein quality
   2. Dried beans
   3. Recipes
   4. Recipes
   5. Textured Vegetable Protein
   6. How to clean ranges
   7. Recipes
   8. Score card for legume products.

II. References:


   Longacre, Doris Janzen, More With Less Cookbook, Herald Press, 1976
**LESSON CONTENT**

**I. U.S. Dietary Guidelines**
- A. Reduce saturated fat, eat less fatty meat, increase complex carbohydrates and fiber
- B. Recommended Dietary Allowances for protein, revised

**II. Combining foods to increase protein quality**
- A. Milk and grains combined form a complete protein
- B. Legumes and grains combined form a complete protein
- C. Ethnic foods using the above combinations

**III. Beans**
- A. Types
  1. Red
  2. Kidney
  3. Lima
  4. Navy
  5. Black
  6. Pinto
  7. Soy
  8. Garbanzo
- B. Versatile food item
  1. Soup
  2. Salad
  3. Main dish
  4. Potato substitute
- C. Preparation techniques
  1. Finished product should be tender and of good texture
  2. Boil for two minutes, then let them soak for one hour (This takes the place of soaking overnight)
  3. Continue cooking in soaking water

**CLASS ACTIVITY AND EVALUATION**

- Discuss Handout 1: Combining Foods to Increase Protein Quality
  Participants discuss popular foods illustrating these combinations
- Show filmstrip "Vegetarianism in a Nutshell", The Polished Apple, 84 frames, 14 minutes
- See Handout 2: Dried Beans
- List examples of beans used in these forms
- See page 500: Food for Fifty
- See Handout 3: Recipes
  Prepare: Red Beans and Rice
  Sweet and Sour Beans
  Cuban Black Beans
**D. Nutrient content**
1. Good sources of protein quantity and quality, thiamine, niacin and iron
2. \(\frac{1}{2}\) cup may replace one ounce cooked lean meat

**IV. Dried Peas**

A. Types
1. Yellow
2. Green

B. Forms
1. Whole
2. Split

C. Storage

D. Preparation--
Boil 2 minutes and let set 30 minutes (This takes the place of soaking overnight). Peas should be cooked slowly in small batches to retain their shape and to avoid mashing

E. Nutrient content

**V. Lentils**

A. National origin--among most ancient of foods

B. Nutrient contributions
1. Vegetable protein
2. Vitamin A
3. Vitamin B
4. Calcium

C. Easy to prepare, no soaking, become tender in about \(\frac{1}{2}\) hour

D. Available year-round as red, brown, yellow or green

E. Different types may be used interchangeably

---

**CLASS ACTIVITY AND EVALUATION**

List examples of recipes using dried peas
Prepare Split Pea Soup, page 485: *Food for Fifty*

Prepare Lentil Vegetable Soup; recipe on Handout 4: *Recipes*
<table>
<thead>
<tr>
<th>LESSON CONTENT</th>
<th>CLASS ACTIVITY AND EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>VI. Nuts</td>
<td></td>
</tr>
<tr>
<td>A. Peanut butter</td>
<td>Prepare Vegetable Nut Loaf with Onion Sauce, Handout 7: Recipes</td>
</tr>
<tr>
<td>1. Must contain a minimum of 90% peanuts</td>
<td>Peanut butter should be removed from the refrigerator the day before it is to be used, so that it will have sufficient time to come to room temperature</td>
</tr>
<tr>
<td>2. Good source of protein</td>
<td></td>
</tr>
<tr>
<td>3. Good source of niacin</td>
<td>Study recipes using ground meat combined with textured vegetable protein. Class discussion on experiences using textured vegetable protein</td>
</tr>
<tr>
<td>4. 2 tablespoons may replace 1 ounce cooked lean meat</td>
<td></td>
</tr>
<tr>
<td>B. Other nuts used as protein source</td>
<td>Discuss Handout 6: How to Clean Ranges and demonstrate cleaning range</td>
</tr>
<tr>
<td>VII. Textured vegetable protein (made from soybeans)</td>
<td></td>
</tr>
<tr>
<td>See Handout 5: Textured Vegetable Protein</td>
<td>Handout 8: Scorecard for Legume Products</td>
</tr>
<tr>
<td>VIII. How to clean ranges</td>
<td></td>
</tr>
<tr>
<td>IX. Evaluation of product</td>
<td></td>
</tr>
<tr>
<td>X. Plan items to be prepared in the following class</td>
<td></td>
</tr>
<tr>
<td>Adjust recipes</td>
<td></td>
</tr>
<tr>
<td>Plan market order</td>
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</tbody>
</table>

- Peanut butter should be removed from the refrigerator the day before it is to be used, so that it will have sufficient time to come to room temperature.
We hear it said that the quality of protein in meat is higher than in vegetable sources, or that meat contains complete protein whereas plants do not. What is meant by these terms?

Twenty amino acids make up the proteins our bodies use. Of these twenty, eight must come directly from the food we eat. These eight are called the essential amino acids. The rest our bodies can synthesize.

All the essential amino acids must be present simultaneously and in proper proportions for our bodies to utilize them. If one is lacking, even temporarily, the body's ability to use protein will fall accordingly.

Complete protein foods contain all eight essential amino acids. Animal products—eggs, milk, and meat—provide all eight amino acids in the proportions our bodies require. Eggs most nearly match the ideal pattern. Milk is a close second, and meats follow. Soybeans and whole rice come close to meats in protein quality. Other grains, the legumes, seeds, and nuts are also good sources of protein but each lacks one or more of the essential amino acids.

The amino acid deficiency in plant proteins does not mean that we must rely on animal products only for a complete protein supply. The amino acids lacking in one plant source can be made up in another. Plant proteins complement each other.

But how do we know what complements what? Actually the relationships are not hard to remember. Food habits from all over the world reflect an intuitive skill in combining complementary amino acids.

Eating a mixture of protein sources can increase the protein value of the meal; here's a case where the whole is greater than the sum of its parts.... Such mixes do not result in a perfect protein that is fully utilizable by the body (remember that only egg is near perfect). But combinations can increase the protein quality as much as fifty percent above the average of the items eaten separately.

Some of our most common are cereal with milk, cheese sandwiches, and bread with milk. These are typical of a European background where grains and dairy products make up an important part of the diet. Other parts of the world have prepared nutritious combinations for centuries. Latin Americans eat rice with beans or beans with corn. In India a pea or lentil puree (dhal) is eaten over rice. In Indonesia fermented soybean cakes (tempe) go with the rice meal. A mung bean-rice cereal is a popular Vietnamese breakfast. The Chinese and Japanese use bean noodles, bean curd, and bean sprouts with rice. Rice-lentil mixtures complemented by yogurt are common in the Middle East. Cornmeal mush eaten with beans is a staple in many African countries. We can keep using our own well-known cereal-milk combination and borrow from other traditions for a more interesting and responsible diet.

Complementary foods, to provide maximum usable protein, must be eaten together at the same meal.

### MILK PRODUCTS SHOULD ALWAYS BE SERVED WITH GRAINS

- cereal with milk
- bread and milk
- cheese sandwiches
- macaroni with cheese
- rice-cream casserole
- lasagna (pasta and cheese)
- pizza (crust and cheese)
- cheese fondu
- granola or grape nuts made with milk
- baked goods containing milk
- rice pudding (rice and milk)

### LEGUMES SHOULD ALWAYS BE SERVED WITH GRAINS

- peanut-butter sandwiches
- soybean salad with bread
- bread containing soy flour
- lentil soup and muffins
- lentils or split peas (dhal) with rice
- rice-bean casserole
- Boston baked beans with brown bread
- beans and tortillas
- refried beans and rice
- beans and corn bread
- bean soup and bread
Dried Beans

Did You Know?

Dried beans, nutrient-packed basic foods in many countries of the world, can be smoky black, red, pink, tan, white or speckled, with sizes that vary from the large oval of limas to the small round of navy or pea beans. If you can't find the kind of dried bean called for in the recipe, use another variety; they are interchangeable.

All dried beans—and dried peas, too—are high in vegetable protein; combine them with meats and dairy foods for optimum use of the protein in each food. To prevent foaming during the first cooking, add a tablespoon of margarine to the beans.

You can expect the beans to double or triple in volume as they cook.

Bean Chart

- Kidney Beans
- Garbanzo Beans
- Navy or Pea Beans
- Great Northern Beans
- Pinto Beans
- Black Beans
- Lentils
- Split Peas
RECIPES

SWEET AND SOUR BEANS
--Helen Brown, Wichita Home Economics teacher

8 slices bacon--fried crisp, drained, crumbled and set aside
4 medium onions sauteed in bacon grease

Combine onions with:
1 cup brown sugar
1/2 cup vinegar
1 teaspoon salt
1/2 teaspoon garlic powder or 2 cloves fresh garlic

Cook above for a sauce, 20 minutes, covered.

Add: 1-15 oz. can each of the following:
garbanzos, drained
butter beans, drained
baby limas, drained
red kidney beans drained and rinsed
pork and beans, not drained

Combine with sauce and crumbled bacon and bake 1 hr., 350°F.

Note: (Another can of butter beans may be substituted for garbanzos.)

---

How to Grow Your Own Bean Sprouts

Did You Know?

It's easy to sprout mung beans in your kitchen. Fold a piece of terrycloth or cheesecloth (about 16 x 8 inches) into fourths (8 x 4 inches). Place in loaf pan, 9 1/2 x 5 x 3 inches. Pour water over the toweling until it is saturated, then sprinkle 1/4 cup dried green mung beans on top in a single layer. Cover with aluminum foil; let stand 24 hours.

Uncover the planter and set it in a dark, draft-free place. Water it each day as the top layer dries out. Beans will sprout in two or three days, and will be ready to harvest in four to six days.

To harvest, snip the plants off at the base with scissors. Rinse to remove the husks and dry well. Place in a plastic bag; close tightly and refrigerate no longer than three days. The yield from 1/4 cup dried mung beans is three cups.

---

RED BEANS AND RICE

6 servings, about 1/2 cup each

Onion, chopped 1/2 cup
Celery, chopped 1/2 cup
Garlic 1 clove
Butter or margarine 2 tablespoons
Kidney beans 16-ounce can
Cooked rice 2 cups
Parsley, chopped 1 tablespoon
Salt 1/4 teaspoon
Pepper 1/8 teaspoon

Calories per serving: About 165.

1. Cook onion, celery, and garlic in fat until tender. Remove garlic.
2. Add remaining ingredients.
3. Simmer together for 5 minutes to blend flavors.
LENTIL VEGETABLE SOUP

1 lb. lentils
1 cup chopped onion
2 cups chopped celery
2 cups sliced carrots
3 T freeze-dried parsley
1 clove garlic, minced
1 T salt
¼ t pepper
1 t oregano (dried, crushed)
1 lb. can tomatoes
2 T wine vinegar

Rinse lentils and place in soup kettle. Add 8 cups cold water and remaining ingredients except tomatoes and vinegar. Cover and simmer ½ hour. Add tomatoes (break up large pieces) and vinegar. Simmer, covered, 30 minutes longer. Add additional seasoning if desired.

Makes 10-12 servings.

Sheila Cochran, R.D.

Red Beans and Rice

This robust and colorful dish can be the answer to your party-planning questions when you expect a crowd. The dish is served throughout Latin America.

12 servings

2 cups water
8 ounces dried kidney beans* (about 1 cup)
2 ounces salt pork, diced, or 3 slices bacon, cut up
1 medium onion, chopped
1 medium green pepper, chopped
1 cup uncooked regular rice
1½ teaspoons salt

Heat water and beans to boiling in 3-quart saucepan; boil 2 minutes. Remove from heat; cover and let stand 1 hour. Add enough water to cover beans if necessary. Heat to boiling; reduce heat. Cover and simmer until tender, 1 to 1½ hours (do not boil or beans will burst). Drain; reserve liquid.

Fry salt pork in 10-inch skillet until crisp; add onion and green pepper. Cook and stir until onion is tender. Add enough water to reserved liquid to measure 2 cups if necessary. Add reserved liquid, the salt pork, onion, green pepper, rice and salt to beans in 3-quart saucepan. Heat to boiling, stirring once or twice; reduce heat. Cover and simmer 14 minutes. (Do not lift cover or stir.) Remove from heat. Fluff lightly with fork; cover and let steam 5 to 10 minutes.

*1 can (16 ounces) red kidney beans, drained, can be substituted for the cooked dried kidney beans.

Cuban Black Beans

Braised black beans are a staple food in the country cooking of Cuba and other islands of the Caribbean. Often they are served over rice and accompanied by a tossed green salad for a simple meatless main dish.

4 servings

2 cups water
6 ounces black beans (about 1 cup)
1 small green pepper, chopped
1 small onion, sliced
1 clove garlic, finely chopped
1 tablespoon olive or vegetable oil
1 bay leaf
¼ teaspoon crushed dried oregano leaves
½ teaspoon ground cumin
½ teaspoon salt
Dash of pepper
2 cups hot cooked rice (page 253)

Heat water and beans to boiling in 3-quart saucepan; boil 2 minutes. Remove from heat; cover and let stand 1 hour.

Cook and stir green pepper, onion and garlic in oil until onion is tender; stir into beans. Add enough water to cover beans if necessary. Heat to boiling; reduce heat. Stir in bay leaf, oregano, cumin, salt and pepper. Cover and simmer until beans are tender and most of the liquid is absorbed, 1½ to 2 hours. Remove bay leaf. Serve over rice.
VI. Textured Vegetable Protein

A. Food products made with textured vegetable protein may be used to fulfill part of the meat requirements for Type A school lunch.

B. Textured vegetable protein is made from soybeans, cereal flours and other plant proteins.

C. Textured vegetable protein can be purchased dry or frozen.

D. Options are flavoring and coloring.
   1. The USDA Quantity Recipes for Type A Lunches have been standardized using the unflavored product, since flavors vary from one processor to another.
   2. The USDA Quantity Recipes for Type A Lunches have been standardized using the colored product, since it is less apparent in the prepared foods.

E. To be served in school foodservice, textured vegetable protein must meet certain conditions.
   1. The textured vegetable protein must meet specifications listed in USDA, FNS Notice 219-1.
   2. The hydrated textured vegetable protein must be served in combination with red meat, poultry or fish.
   3. The meats used shall be ground, and the combination shall be served as meat patties, meat loaves, meat sauce, chili, lasagne, pizza or similar products.
   4. The hydrated textured vegetable protein will have a moisture content of 60 to 65 percent.
   5. The hydrated vegetable protein will replace no more than 30 percent of the meat.

F. Textured vegetable protein is generally easy to use.
   1. Add water to hydrate.
   2. Blend with other foods.
### How to Clean Ranges

<table>
<thead>
<tr>
<th>When</th>
<th>How</th>
<th>Use</th>
</tr>
</thead>
</table>
| **GRILL PLATES**<br>After each use | 1. Allow plate to cool  
2. Scrape grill to loosen burned-on particles  
3. Remove loose particles  
4. Scrub grill plate  
5. Scrub grease trough  
6. Scrub back apron  
7. Remove, dump, and wash grease trap  
8. Rinse and wipe dry | Heavy turner or putty knife  
Cloth, dust pan  
Hot machine detergent solution, gong brush  
Same as above  
Same as above  
Same as above  
Clean hot water  
Clean dry cloth |
| **OPEN TOP**<br>Daily | 1. Allow range to cool  
2. Lift out burner grids, take to sink and scrub  
3. Rinse, wipe dry  
4. Brush burners, light burners to check for clogged burners  
5. Clean back apron and warming oven  
6. Remove grease and/or warming trays below burners; take to sink and scrub  
7. Rinse and wipe dry  
8. Replace clean grids and trays | Hot machine detergent solution, gong brush  
Wire brush  
Clean hot water, clean dry cloth  
Wire brush, ice pick  
Hot machine detergent clean damp cloth  
Same as above  
Clean hot water, clean dry cloth |
| **SOLID TOP**<br>Daily | 1. Allow range to cool  
2. Loosen all burned-on particles  
3. Scrub top of range (keep water to minimum)  
4. Clean back apron and warming oven  
5. Rinse and wipe dry  
6. Apply rust preventative to solid tops | Putty knife, dust pan  
Hot machine detergent solution, gong brush, clean damp cloth  
Same as above  
Clean hot water, clean dry cloth  
Salad oil or clean shortening |
VEGETABLE-NUT LOAF

6 servings, about 2½ by 4 inches each
Calories per serving: About 450 with walnuts and 445 with pecans (not including sauce).

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat germ, unsweetened</td>
<td>To coat pan</td>
</tr>
<tr>
<td>Carrots, chopped</td>
<td>1 cup</td>
</tr>
<tr>
<td>Celery, chopped</td>
<td>1 cup</td>
</tr>
<tr>
<td>Onion, chopped</td>
<td>½ cup</td>
</tr>
<tr>
<td>Butter or margarine</td>
<td>½ cup</td>
</tr>
<tr>
<td>Flour</td>
<td>¼ cup</td>
</tr>
<tr>
<td>Salt</td>
<td>1 teaspoon</td>
</tr>
<tr>
<td>Pepper</td>
<td>½ teaspoon</td>
</tr>
<tr>
<td>Thyme, if desired</td>
<td>¼ teaspoon</td>
</tr>
<tr>
<td>Milk</td>
<td>1½ cups</td>
</tr>
<tr>
<td>Natural Cheddar cheese, shredded</td>
<td>1 cup</td>
</tr>
<tr>
<td>Walnuts or pecans, chopped</td>
<td>1 cup</td>
</tr>
<tr>
<td>Wheat germ, unsweetened</td>
<td>¾ cup</td>
</tr>
<tr>
<td>Eggs, slightly beaten</td>
<td>3</td>
</tr>
<tr>
<td>Onion sauce</td>
<td>As desired</td>
</tr>
</tbody>
</table>

1. Preheat oven to 350°F (moderate).
2. Grease 8- by 8- by 2-inch baking pan. Coat with wheat germ.
3. Cook vegetables in fat until onion is tender.
4. Stir in flour, salt, pepper, and thyme (if used). Stir in milk. Cook and stir over moderate heat until thick.
5. Stir in cheese, nuts, and ¾ cup wheat germ. Add eggs.
6. Pour into baking pan.
7. Bake about 40 minutes or until well browned and firm.
8. Let stand a few minutes; cut into serving-size pieces. Serve with sauce.

ONION SAUCE FOR VEGETABLE-NUT LOAF

1½ cups
Calories per ¼: About 55.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butter or margarine</td>
<td>2 tablespoons</td>
</tr>
<tr>
<td>Onion, finely chopped</td>
<td>2 tablespoons</td>
</tr>
<tr>
<td>Flour</td>
<td>¼ cup</td>
</tr>
<tr>
<td>Water or potato cooking</td>
<td>1½ cups</td>
</tr>
<tr>
<td>Soy sauce</td>
<td>2 teaspoons</td>
</tr>
<tr>
<td>Salt</td>
<td>½ teaspoon</td>
</tr>
<tr>
<td>Pepper</td>
<td>Few grains</td>
</tr>
</tbody>
</table>

1. Melt fat in small pan over moderate heat. Cook onion until lightly browned.
2. Stir in flour.
3. Remove from heat.

NOTE: Broth from other cooked vegetables may be included.
SCORECARD FOR LEGUME PRODUCTS

Evaluate against characteristics of a high quality product using a 5-point scale--5=most desirable, 1=least desirable.

<table>
<thead>
<tr>
<th>Product</th>
<th>Appearance</th>
<th>Texture</th>
<th>Tenderness</th>
<th>Flavor</th>
<th>General Acceptability</th>
</tr>
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<tbody>
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</table>

Characteristics of High Quality Dried Legume Products:

- **Appearance:** Beans or lentils retain shape. Liquid well absorbed by legumes (unless a stew or soup product).
- **Texture:** Dried legumes (except soybeans) are mealy.
- **Tenderness:** Little resistance to bite.
- **Flavor:** Distinctive for variety or type of legume; seasonings well blended.
Lesson 5: Cheese, Eggs and Milk

Module IV: Protein Potpourri

I. Instructor preparation for class activities

A. Obtain samples of various cheeses for examination and tasting by students in addition to ones used in recipes prepared in class

B. Obtain at least 3 sizes of fresh eggs plus samples of frozen and dried eggs

C. Duplicate sufficient copies of handouts
   1. Scorecard for Cheese and Egg Cookery

II. USDA Bulletins providing more information for this lesson: #193, 128, 129, 0-244-165, 0-452-111, 144, 103, L-315, L-244, L-465
LESSON CONTENT

I. Cheese

A. Definition by Food and Drug Administration: "A product, made from the curd obtained from whole, partly skimmed, or skimmed milk of cows, or from milk obtained from other animals with or without added cream, by coagulating with rennet, lactic acid, or other suitable enzyme or acid with or without further treatment of the separated curd by that or pressure, or by means of ripening ferments, special mold or seasonings."

B. Kinds

1. Cured or Ripened
   a. Ripening is the change in physical properties, such as aroma, texture and composition
   b. Cheddar cheese, often called American cheese, is ripened by bacteria. The longer the curing period, the sharper, rich and fuller the flavor
   c. Green cheese is unripened cheese and is tough and leathery. During ripening, the protein breaks down and causes cheese to become soft and mellow
   d. Process cheese is a blend of several natural cheese and pasteurized with the aid of heat and an emulsifying agent. There is no waste in process cheese, because there is no rind.

2. Unripened
   a. Cottage cheese is made from the curds of pasteurized skim milk
   b. Cream cheese is made from cream or a mixture of cream and milk
   c. Neufchatel cheese resembles cream cheese, but contains more protein and less fat

C. Varieties

1. Cheese is an ancient method of preserving milk
2. Many cheeses were named for the town in which they were made
3. In the U.S. most common are cottage and American

CLASS ACTIVITY AND EVALUATION

Provide a variety of cheese for participants to taste and discuss their uses
See pages 195-196: Food for Fifty

See Guide to Natural Cheeses, pages 196-197: Food for Fifty
Lesson 5: Cheese, Eggs, and Milk

Module IV: Protein Potpourri

LESSON CONTENT

D. Storage

E. Nutrients
   1. Cheese is in the dairy group of the Basic Four Food Groups and does not contain as much iron as meat and eggs.
   2. As a form of milk, may be combined with grains to form a complete protein.
   3. Milk and cheese also improve the protein in potatoes, beans, rice, and corn.

F. Menus
   1. Cheese may be used in main dishes, salads, and salad dressings, soups, sauces, sandwiches, desserts, or as snacks, appetizers, and garnishes.

G. Principles of Cookery
   1. Cheese melts at 325° F., so bake at no higher than 350° F., preferably with an insulating layer of buttered crumbs on top of cheese.
   2. All cheese dishes should be cooked at low temperatures and not held for long periods.
      a. Add grated cheese to white sauce after starch is thoroughly cooked.
      b. Process cheese combines readily because of added moisture and emulsification of fat.

H. Characteristics of high quality products

CLASS ACTIVITY AND EVALUATION

Review Lesson 4: Beans, Other Legumes, Nuts, and Textured Vegetable Protein
Discuss popular Mexican foods using these combinations.

Write a menu using cheese as a main dish.
Add cheese recipes to students' file.

See Milk Cookery, page 200: Food for Fifty
Demonstrate effect of overcooking cheese:
Prepare 2 identical samples of a slice of cheddar cheese ¼ inch thick on a slice of toast.
Bake 1 slice at 300° F. for 5 minutes.
Bake the other slice at 500° F. for 5 minutes.
Taste each portion and compare flavor, tenderness, stringiness, and fat separation.

Students choose cheese items from recipes for cheese, eggs, and milk, pages 201-217: Food for Fifty.
Examples: Cheese souffles: page 205
Quiche: page 217
Macaroni and cheese: page 204
Corn Rarebit: page 206

Students and instructor compile a list and record at bottom of Handout 1: Scorecard for Cheese and Egg Cookery.
### LESSON CONTENT

#### II. Eggs

**A. Description**
1. Composed of a living center surrounded by large amounts of food substances, the whole protected by several membranes.
2. The chief parts are the yolk, the albumen (white) and the shell and shell membranes.

**B. Functions**
1. Thickening agent—such as in custards and sauces.
2. Emulsifying Agent—such as mayonnaise.
3. Binder—in meatloaf or dip before breading meats.
4. Leavening agent—in cream puffs and cakes.
5. Add structure—angel food cake, meringue, souffle and omelet.
6. As a main dish—creamed egg on toast.
7. Garnish.
8. Clarify broth or boiled coffee.

**C. Quality characteristics—Eggs are highly perishable**
1. Age—size of air cell is smaller in a fresh egg—Quality affected more by the way they are handled than by age.
2. Store in refrigerator—deterioration is rapid at room temperature.
3. Store in original carton away from strong odors with large end up.
4. Methods of preservation
   a. Cold storage: High quality fresh eggs kept in cold storage with a relative humidity of 85-90% and may be kept as long as six months.
   b. Freezer: frozen eggs are available as whole eggs, yolks, whites and blends.
   c. Dried: dried eggs are available as whole egg solids, egg-white solids or egg yolk solids.

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### CLASS ACTIVITY AND EVALUATION

See pages 198-199: Food for Fifty
Discuss functions of eggs in food production

Collect recipes using eggs as a main dish.
5. Grades: AA, A and B
   a. Using good quality eggs is a precaution taken in an effort to prevent salmonellosis—a major foodborne, severe digestive illness
   b. In institutions eggs must be cooked or pasteurized. Raw eggs may not be served

6. Sizes—by weight, in 3 oz. increments
   a. Jumbo—30 oz. per dozen
   b. Extra large—27 oz. per dozen
   c. Large—24 oz. per dozen
   d. Medium—21 oz. per dozen
   e. Small—18 oz. per dozen
   f. Peewee—15 oz. per dozen

7. Price of eggs is determined also by availability of certain sizes

D. Nutrients
   1. Eggs are an excellent source of protein, vitamins A and D, iron and riboflavin and are easily digested. Egg yolk also contains fat and cholesterol
   2. One large egg may replace one ounce cooked lean meat
   3. Eggs are a complete protein and can be used as a meat substitute, as well as an extender of other protein foods

E. Forms
   1. Fresh
   2. Frozen—whites, yolks and whole
   3. Dried

F. Cooking Methods
   1. Low temperature and quick cooling are main principles
   2. Should be brought to room temperature before using

---

Discuss availability and uses for various grades and sizes of eggs

Discuss cost per pound of eggs compared to cost per pound of meat

Discuss uses for various size eggs

Crack six large eggs into measuring cup and six small eggs into another cup. Compare volume and/or weight

Examine chalaza in a fresh egg. Demonstrate how beating breaks up chalazae

See Processed Eggs, page 199: Food for Fifty

Discuss uses for various forms

Calculate amount of dried and/or frozen eggs to use in a recipe calling for fresh eggs, using Table 2.3: "Equivalents of Shell Eggs and Egg Products," page 199: Food for Fifty

Demonstrate difference between "hard-boiling" and "hard-cooking" (simmering) an egg.

Compare tenderness
### Lesson Content

3. If hard-cooked in shell, drain, then shake pot to crack egg, cover with cold water to cool quickly and facilitate peeling from large end. If a whole egg will spin like a top, it is hard-cooked.

4. When hard-cooking eggs in quantity for chopped eggs, break 4 dozen eggs in a greased 12" x 20" x 2" steamer pan, cover and steam or bake. Then chop. Saves time and labor.

   **Important:** Eggs should be thick enough so whites come up to the level of yolks—for 1 dozen use pan 5" x 12" x 2".

5. Too high or too long of cooking results in toughening of egg white, discoloration and toughening of yolk and an unpleasant flavor.

### Class Activity and Evaluation

- **Demonstrate spinning a hard-cooked egg to determine whether egg is raw or cooked**
- **See Egg recipes, page 207: Food for Fifty**
- **Prepare hard-cooked eggs in steamer or oven**
  - Steam eggs 13-15 minutes
  - Bake approximately 30 minutes at 350°F.
- **Prepare a variety of egg dishes selected by students from Food for Fifty. Examples:**
  - Egg Foo Yung: page 212
  - Scotch Woodcock: page 213
  - Chinese Omelet: page 210
  - Deviled Eggs: page 214
- **Note:** Breakfast eggs and omelets are included in Module I: Breads and Breakfasts

- **Students and instructor compile a list and record at bottom of Handout 1: Scorecard for Cheese and Egg Cookery**
Evaluate against characteristics of a high quality product using a 5-point scale—5=most desirable, 1=least desirable.

<table>
<thead>
<tr>
<th>Product</th>
<th>Appearance</th>
<th>Texture</th>
<th>Tenderness</th>
<th>Flavor</th>
<th>General Acceptability</th>
</tr>
</thead>
</table>

Characteristics of a High Quality Product:
Lesson 6: Sandwiches

Module IV: Protein Potpourri

I. Instructor preparation for class activities

A. Assemble ingredients for sandwich recipes selected by students and/or instructor

B. Assemble tools used in production
   1. Cutting board - synthetic, not wood
   2. French knife or serrated bread knife
   3. Mixing bowls
   4. Plastic gloves
   5. Sandwich bags or waxed paper for wrapping
   6. Scoops or dippers
   7. Spatula for spreading filling
   8. Spoons
   9. Storage pan or trays, foil to cover

C. Duplicate sufficient copies of Handouts
   1. Sandwich Arrangements
   2. Scorecard for Sandwiches
   3. Evaluation of course

II. The following references provide more information on the subject of this lesson:


## Lesson Content

### I. Introduction

<table>
<thead>
<tr>
<th>A. Sandwiches add variety to a menu</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Many different types of enriched or whole grain bread and rolls and sandwich fillings which fulfill the meat/meat alternate requirements may be used</td>
</tr>
<tr>
<td>2. Sandwiches may be served hot or cold; closed- or open-faced</td>
</tr>
<tr>
<td>3. Soup and sandwich or salad and sandwich meals are popular</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Varying the bread and rolls used will provide variety in flavor, texture, size and shape. They must be made with whole-grain or enriched meal or flour</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Types of bread and rolls for cold, hot and tea sandwiches</td>
</tr>
<tr>
<td>2. Bread should be fine textured and tender</td>
</tr>
<tr>
<td>3. Store at room temperature to delay-staling or freeze for up to two months</td>
</tr>
<tr>
<td>4. Size and shape</td>
</tr>
<tr>
<td>a. Pullman--4½&quot; square slice, with fine texture and firm, tough crust</td>
</tr>
<tr>
<td>b. Spring top loaf--larger slice with rounded top, open texture, tender crust</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. Other ingredients</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Spread, such as butter, margarine or mayonnaise, adds flavor and prevents main filling from soaking bread</td>
</tr>
<tr>
<td>2. Fillings provide variety in flavor and texture</td>
</tr>
<tr>
<td>a. List sliced cold or hot meats</td>
</tr>
<tr>
<td>b. List sliced cold or hot cheeses</td>
</tr>
<tr>
<td>c. List salad-types</td>
</tr>
<tr>
<td>d. List cold or hot fish</td>
</tr>
<tr>
<td>e. List cold or hot eggs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D. Portioning and Serving</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Determining portions</td>
</tr>
<tr>
<td>2. Tools for portioning</td>
</tr>
<tr>
<td>3. Cutting and serving</td>
</tr>
<tr>
<td>4. Garnishes</td>
</tr>
<tr>
<td>5. Accompaniments</td>
</tr>
</tbody>
</table>

## Class Activity and Evaluation

- See pages 442-443: Food for Fifty
- Have students brainstorm on types of bread and rolls including ethnic varieties
- Examine a variety of bread, checking weight of loaf, number of slices per loaf, texture, crust, etc.
- Discuss operation of slicer, adjusting thickness of slice
- Discuss proper storage of sandwich fillings
- See recipes for sandwiches, pages 446-457: Food for Fifty
- Discuss portion sizes of commercial sandwiches as well as sandwiches for institutional use
- Handout 1: Sandwich Arrangements
- See garnishes, pages 590-591: Food for Fifty
**LESSON CONTENT**

### II. Types

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
</table>
| A. Closed | 1. Hot  
2. Cold |
| B. Grilled, toasted and deep fat fried |
| C. Open-faced | 1. Hot  
2. Cold |
| D. Tea | 1. Open  
2. Ribbon  
3. Checkerboard  
4. Rolled |
| E. Miscellaneous |

### III. Assembling the sandwich using principles of time and motion economy

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Using both hands (gloved), grasp the loaf of bread and drop slices in four rows of five each, starting in upper left hand corner and working toward the right and toward you</td>
</tr>
<tr>
<td>B.</td>
<td>With narrow spatula in right hand, spread butter to edges of bread with one sweeping motion. With left hand, scoop a portion of sandwich filling into center of each slice (#24 or #20 dipper is common size)</td>
</tr>
<tr>
<td>C.</td>
<td>With right hand use a stroke of the spatula away from you and a stroke towards you to spread filling evenly to edge of bread. With left hand place lettuce on filling</td>
</tr>
</tbody>
</table>

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**CLASS ACTIVITY AND EVALUATION**

- Students list examples of various types of sandwiches.
  - See page 443: *Food for Fifty*
  - Discuss examples of grilled, toasted and deep fat fried sandwiches.
  - See pages 444-445: *Food for Fifty*
  - Show "Fast Sandwich Making" or "Modern Sandwich Methods" and discuss the film content.
  - Arrange equipment and materials for 2-handed activity within easy reach.
  - Instructor will demonstrate smooth work flow, using simplified motions.
  - Instructor with one or two students demonstrate "assembly line" method of preparing sandwiches.
Lesson bT Sandwiches

Module IV: Protein Potpourri

LESSON CONTENT

D. With both hands grasp loaf of bread and drop off two slices over each filled slice, matching edges of bread.

E. Repeat steps 2 through 4 two more times until there are sixty sandwiches in stacks of three. Stacks must be kept low so the cold air of the refrigerator can penetrate the filling.

F. Hold sandwiches together with thumb and first finger of left hand. Cut through several stacks at one time with a sawing motion using a serrated blade or with an electric knife.

G. Place in sandwich bags or waxed paper or in pans with covers and refrigerate. Do not cover sandwiches directly with a damp towel, as the moisture in the towel may promote bacterial growth. Serve sandwiches the same day they are made.

IV. Precautions for production

A. Make sandwiches the day they are to be served.

B. Make prepared fillings only in such quantities as will be used during one serving period.
   1. Avoid leftovers.
   2. Never hold over any perishable foods or fillings that have been at room temperature for four hours or more.

C. Handle bread and fillings as little as possible during preparation.
   1. Avoid the use of hands in direct contact with foods if tools can do the job efficiently.
   2. Use tongs, scoops, forks, and plastic gloves.

D. Avoid stacking sandwiches for refrigeration more than three high. Over-stacking will insulate the filling and prevent proper storage temperature.

CLASS ACTIVITY AND EVALUATION

Demonstrate cutting from the upper left corner of the 4 x 5 arrangement to the far lower right corner.

Demonstrate how to wrap sandwiches.

Students will prepare examples of various types of sandwiches using recipes from Food for Fifty.

Students will display sandwiches on plates with appropriate garnish.

Review storage temperatures.
## LESSON CONTENT

### V. Principles of work simplification to save time and motion

#### A. To produce sandwiches efficiently layout is important

1. "Normal work area"
   - a. Comfortable horizontal reach
   - b. Comfortable vertical reach

2. Counter height - recommended working height is 36 inches
   - a. For a short person a slotted floor board may be used
   - b. For a tall person put an extra cutting board on the counter top

3. Comfortable well-fitted shoes and wood board or rubber mats to stand on reduce tired backs and aching feet

4. Refrigerator space for ingredients and finished sandwiches should be nearby

#### B. Definition of Work Simplification

1. Work simplification is the process of doing a job better by incorporating ways to make the work easier, faster and less expensive

2. It allows foodservice personnel to "work smarter, not harder"

#### C. Advantages of Work Simplification

1. Work simplification gives the employee more confidence; it fosters creative thinking and increases job satisfaction

2. It improves the quality of the foodservice

3. It eliminates nonessential work

4. It increases productivity

5. It saves money

#### D. General Principles of Work Simplification

1. Use smooth flowing motions
   - a. An overlapping figure-eight stroke or a circular motion requires less employee energy than stilted "back and forth" strokes
   - b. Use such a motion when washing the work area or mopping the floor

### CLASS ACTIVITY AND EVALUATION

- Students stand in front of work table and measure the work area that is "normal" for them and which does not involve excessive stretching or stooping.
- Students determine comfortable work table height.

- Class discussion on why work simplification is important in food service.

- Students describe examples of these advantages in their work experience.

- Students and instructor demonstrate each of the principles in as many ways as possible.
<table>
<thead>
<tr>
<th>LESSON CONTENT</th>
<th>CLASS ACTIVITY AND EVALUATION</th>
</tr>
</thead>
</table>
| 2. Make both hands productive at the same time  
   a. Hands should work together in unison, beginning and ending motions at the same time  
   b. This can double productivity in sandwich production, as well as portioning salads, desserts, etc. |
| 3. Make hand and body motions few, short and simple  
   a. Each motion should make use of the least possible time and energy  
   (1) If possible, use a hand motion instead of an arm motion  
   (2) Use an arm motion instead of a body motion |
| 4. Maintain comfortable positions and conditions  
  5. Position materials for efficient sequence of motions  
  6. Use best available equipment for the job  
  7. Locate activity in "normal work area" when possible  
  8. Store material in an orderly manner |

VI. Evaluation of sandwiches

VII. Evaluation of course

Handout 2: Scorecard for Sandwiches
Handout 3: Evaluation of Course
The following illustrations suggest possible sandwich arrangements from cutting cues given on preceding page. Garnishes, relishes, salad or soup accompaniments can be arranged in open spaces.

Evaluate against characteristics of a high quality product using a 5-point scale--5=most desirable, 1=least desirable.

<table>
<thead>
<tr>
<th>Product</th>
<th>Appearance</th>
<th>Texture</th>
<th>Temperature</th>
<th>Flavor</th>
<th>General Acceptability</th>
</tr>
</thead>
</table>

Characteristics of a High Quality Product:

Appearance: Neat and attractive, look "good enough to eat"
Fresh and appealing
Pieces easy to handle

Filling: Well-seasoned, flavorful
Flavors of bread and filling should harmonize
Rich enough to be satisfying
Sufficiently moist to balance normal dryness of bread
Spread to edge of bread; not project beyond it
Adequate amount of filling, but with portion control

Bread: Fine textured and reasonably tender
Firm enough to spread well
Good clear flavor of cereal from which it is made

Temperature: Hot sandwiches: above 145° F.
Cold sandwiches: below 45° F.
This is what I learned at this workshop:

This is how I'll use what I learned on my job:

Next Time, I hope you will:

(over for more space)
Module 5--Desserts: The Happy Ending

Course length--18 hours: 3 hours per session for six weeks

Starting Date--

Prerequisite--Some experience in quantity food production is desirable

Learning Strategy--Presentation of the course will be by lecture, demonstrations, actual "hands on" class activities, and audio-visual materials. Handouts will be distributed at most sessions.

COURSE OUTLINE:

I. Lesson one: Fruits and Fruit Fillings
   1. General orientation
      a. Orientation to the facility
      b. Student Handbook
   2. Use of equipment
   3. Preparation and evaluation of fruit fillings
   4. Demonstration of serving fruit desserts attractively

II. Lesson two: Pastry
    1. Discuss types of pies
    2. Methods for mixing, scaling and rolling pastry
    3. Equipment for mixing pastry
    4. Common difficulties with pastry
    5. Preparation and evaluation of several types of pie
    6. Adjust a recipe for pastry

III. Lesson three: Puddings, Custard and Soft Meringues
     1. Principles of starch cookery--differences in thickening power
     2. Effect of over-stirring and under-cooking
     3. Function of ingredients, starch, eggs, sugar and acid
     4. Preparation and evaluation of puddings, custards and soft meringues
     5. Portioning and garnishing puddings
     6. Nutritional contribution of these desserts

IV. Lesson four: Cookies
    1. Types of cookies: Rolled, refrigerator, pressed, sheet, drop, filled
    2. Use of standardized recipes and proper equipment
    3. Function of ingredients in cookies
    4. Preparation and evaluation of rolled, dropped, refrigerator and bar cookies
    5. Storage of cookies
V. Lesson five: Cakes
1. Classification of cakes, and their variations
2. Methods of mixing cakes
3. Scaling batter into pans
4. Types of frostings
5. Compare "box" cakes with "made from scratch"
6. Preparation and evaluation of a variety of cakes and cobbler cakes

VI. Lesson six—Dessert specialties
1. Discuss specialties such as crisps, Betty, cream puffs or eclairs and meringue shells
2. Nutritional contribution of these desserts
3. Preparation and evaluation of fruit crisp, fruit Betty, cream puffs and meringue shells
4. Demonstrate portioning and garnishing these desserts
5. Summary of previous lessons
6. Course evaluation

EXPECTED OUTCOME.
Participants will become more aware of their valuable and vital role on the health care team by providing nutritious and appealing meals to the residents (patients) in their facilities as an aid to their well-being.

Developed cooperatively by Occupational Home Economics, Kansas Department of Vocational Education, Wichita Area Vocational-Technical School and members of the Kansas Dietetic Association.

An equal employment/educational institution.
LESSON ONE: FRUITS AND FRUIT FILLINGS

GOALS: The purpose of this lesson is to:
1. Introduce participants and faculty.
2. Acquaint the participants to the scope of this short course.
3. Introduce the participants to the physical plant of the kitchen and work area.
4. Teach the participant to use the correct procedures to measure and weigh food ingredients.
5. Have the participant gain understanding of how fruit is used as a dessert.

BEHAVIORAL OBJECTIVES: After completion of this lesson the participant should be able to:
1. Demonstrate sanitary methods of cleaning work surfaces, washing and storing equipment and utensils.
2. Recognize correct weighing and measuring techniques used in quantity food preparation.
3. Demonstrate use of range top in preparation of fruit filling.
4. Name four types of fruit and give examples of how they may be served as desserts.
5. Discuss nutritional contribution of fruits in the diet.
6. List ways to prevent discoloration of fresh fruits.
7. Demonstrate the assembly and display of fruit plates and fruit desserts.
8. List characteristics of high quality fruit desserts.

LESSON TWO: PASTRY

GOAL: The purpose of this lesson is to enable the participant to develop a better understanding of the techniques involved in making high quality pastry.

BEHAVIORAL OBJECTIVES: After completion of this lesson, the student should be able to:
1. Describe qualities of good pastry.
2. List the ingredients used in pastry, their functions and proportions.
3. Describe proper methods for mixing, scaling, and rolling pastry for one crust and two crust pies.
4. Demonstrate use of dough hook and pastry cutter attachments on mixer in preparing pastries.
6. Name the reasons for some common pastry difficulties.
7. List examples of fruit pies; cream pies, chiffon pies, and soft pies.
8. Describe characteristics of a good soft meringue.
9. Increase or decrease a recipe for pastry using tables in Food for Fifty.
LESSON THREE: PUDDINGS, CUSTARD AND SOFT MERVINGUES

GOALS: The purpose of this lesson is to:

1. Acquaint the participant with the principles of starch cookery and the function of eggs, flour cornstarch and tapioca in puddings, custards and meringues.

BEHAVIORAL OBJECTIVES: After completion of this lesson, the participant should be able to:

1. Outline the principles of starch cookery.
2. List differences between thickening power of cornstarch, waxy maize flour, tapioca and eggs.
3. Describe effects of undercooking, and over stirring in starch cookery.
4. Discuss the nutritional contribution of eggs, milk, fat, sugar and starch used in desserts.
5. List the proportions of milk, sugar and eggs in a standard baked custard.
6. Identify standards for quality puddings, custards and soft margarines.
7. Compare costs of pudding made from commercial mixes and pudding made from scratch.
8. Demonstrate use of steam-jacketed kettle, double boiler and oven in dessert preparation.

LESSON FOUR: COOKIES

GOALS: The purpose of this lesson is to allow participants to compare types of cookies and methods of preparing cookies using principles of motion economy and portion control.

BEHAVIORAL OBJECTIVES: After completion of this lesson, the participant should be able to:

1. List six types of cookies and describe how they are portioned or shaped.
2. Describe functions of ingredients in cookies.
3. Identify the probable cause for common defects in cookies and suggest ways to prevent these defects.
4. Identify standards of quality for cookies.
5. Prepare rolled, dropped, refrigerated and bar cookies and evaluate them using appropriate score cards.
6. Describe proper storage of cookies.
LESSON FIVE: CAKES

GOALS: The purpose of this lesson is to:

1. Enable the participants to become familiar with various types of cakes and to understand the techniques for preparing them.

BEHAVIORAL OBJECTIVES: After completion of this lesson, the participant should be able to:

1. Name two classifications of cakes.
2. Describe the three common methods of mixing cakes. (conventional, dough-batter and muffin methods)
3. Describe how to scale cake batter into appropriate baking pans.
4. List variations of plain cake, spice cake and chocolate cake.
5. Name examples of 3 common types of frosting—(Boiled or fluffy, butter cream, and cooked—such as coconut-pecan.)
6. List ways to vary and improve cake mixes.
7. Compare cost and quality of "box" versus "made from scratch" cakes.

LESSON SIX—DESSERT SPECIALTIES

GOAL: The purpose of this lesson is to acquaint the participant with other desserts such as fruit crisps and Betty cream puffs and meringue shells.

BEHAVIORAL OBJECTIVES: After completion of this lesson the participant should be able to:

1. Describe quality characteristics of fruit crisps and Bettrys and how they differ.
2. List the ingredients of cream puff shells and describe how they are prepared.
3. Name three variations of cream puffs.
4. Describe equipment used for shaping cream puffs and hard meringue shells.
5. List ways to serve meringue shells.
6. Describe a standard cream puff and a standard meringue shell.
Lesson 1: Fruits and Fruit Fillings

Module 5—Desserts: The Happy Ending

I. Instructor preparation for class activities
   A. Assemble the following equipment:
      - clear parfait glass
      - puddings or fruit dishes
      - sherbet dishes
      - disposable 5 oz. glasses
      - weighing equipment
      - measuring cups and spoons
      - sauce pans
      - wire whips
      - 6" plate--8 or 9" plate
      - 8 or 9" plate

   B. Have available the following ingredients:
      - meringue circles
      - small pastry crust
      - whipped topping
      - shortcake portion
      - sugar
      - variety of fresh fruits, greens for salad plate
      - canned fruits, or pictures from can labels
      - canned peaches or cherries
      - cornstarch, waxy maize, flour, minute tapioca
      - variety of garnishes for fruit fillings
      - can commercial pie filling

   C. Duplicate sufficient copies of handouts for lesson:
      1. Course Outline
      2. Goals and Behavioral Objectives
      3. Filling Preparation
      4. Scorecard for fruit filling
      5. Glossary—Baker

   D. Assemble student handbook information in color-coded folders

II. The following references provide more information on the subject of this module:


   West, Bessie Brooks; Shugart, Grace Severance; Wilson, Maxine, Food For Fifty, John Wiley & Sons, 1979, 6th Ed.
**Lesson 1: Fruits and Fruit Fillings**

**Module 5 -- Desserts: The Happy Ending**

### LESSON CONTENT

#### I. General Orientation

**A. Presentation of name tags and get-acquainted activity**
1. Introduce faculty and students

**B. Complete enrollment procedure**

**C. Orientation to the course**
1. Purpose of the course -- Introduction

Desserts are usually sweet and are used to end a meal. They should blend with the meal and complement it. Desserts should try to end the appetite, and for this reason they are sweet and filling. They can be used to heighten meal interest and add something extra to the meal. Desserts on a menu should be selected for their flavor, richness, color, variety, texture, form, appearance, and the ability to lend themselves to quantity production. They need not be expensive and can do much to improve a meal. Fruit contributes the most nutrition and is the choice of desserts.

- a. Learn by doing, preparation and display
- b. Learn some scientific principle in food preparation
- c. Evaluate finished products using score cards
- d. Importance of clean-up, sanitation and safety practices

2. Meeting place and times
3. Certificate of completion -- grade if given
4. Overview of course

#### D. Orientation to facility

1. Building rules and regulations
2. Location of restrooms and smoking areas

#### E. Student handbook

1. Dress code, personal conduct, food handling, sanitation and safety checklists
2. Use of textbook, note taking and handouts
3. Organization of class into teams

### CLASS ACTIVITY AND EVALUATION

- Play game for introducing participants to each other: Faculty and students tell of their background in food service industry
- Read poem about cooks
- Ask students what they want to learn about fruits and desserts. As much as possible, incorporate those requests into this module
- Explain that other employees will be using this kitchen and expect it to be clean and orderly
- Discuss handout "Goals and Objectives" of this module
- Review handouts in student handbook
- Examine "Food for Fifty" 6th ed. Look up sections on pastry, p. 309; cakes, p. 157; cookies, p. 218; frostings, p. 178; puddings, p. 363
- Assign participants into teams, according to number in class and class activities. Use color-coded folders or colored name tags
**Lesiod-11 - Fruits and Fruit Fillings**

**FOOD SERVICE EMPLOYEES SHORT COURSES**

**Module 5—Desserts: The Happy Ending**

<table>
<thead>
<tr>
<th>LESSON CONTENT</th>
<th>CLASS ACTIVITY AND EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>F. Tour kitchen and work area</strong></td>
<td>Review &quot;Team Duties&quot;</td>
</tr>
<tr>
<td>1. Emphasize handwashing rules and locate handwashing sinks</td>
<td>Outline general activity of this class period</td>
</tr>
<tr>
<td>2. Review 3-sink method of warewashing in student handbook</td>
<td>Participants demonstrate proper handwashing procedures</td>
</tr>
<tr>
<td>3. Discuss sanitary procedures for washing, and storing equipment and utensils</td>
<td>Participants demonstrate filling of sinks, measuring sanitizer, etc.</td>
</tr>
<tr>
<td>1. Instructor will establish policy for returning utensils and ingredients to storage areas</td>
<td>Participants demonstrate method of cleaning and sanitizing work surfaces, washing and storing utensils</td>
</tr>
</tbody>
</table>

**II. Use of equipment**

A. Demonstrate use of scales and measuring equipment in quantity food preparation
B. Demonstrate use of range top, ovens, Steam Jacket kettle, double boiler

**III. Lecture: Fruit**

A. Some types of fruit are

1. Canned
   a. Mixture such as fruit cocktail
   b. Sliced—diced, pie packed whole, halves, peeled or unpeeled
   c. Syrup, light, or heavy—waterpacked
   d. Keeping qualities of canned fruits, temperature of storeroom

2. Dried
   a. Bananas, raisins, currents, apples, pears, prunes, apricots, pineapple, sometimes combined with nuts
   b. How to store, shelflife—Below 70° or refrigerated
   c. How to prepare and serve
      1. May be rehydrated and used same as canned fruits
         a. Soak end cook in same water—Little or no sugar is needed
      2. May be ground and made into candy ball
      3. May be stewed and served in a compote
   d. Dried fruits are expensive

Display examples of canned fruits if possible, or use can labels or pictures from magazines

Participants taste variety of dried fruits; snack mixture if possible. Discuss how they have seen dried fruit served
### Lesson Content

#### Fresh

- **a. Seasonal availability**
- **b. How to store—keeping qualities**
  - Ripen at 60-70°F—Refrigerate
- **c. Methods of preparation**
- **d. Ways to prevent discoloration**
  1. Dip in diluted lemon juice on cut fresh fruit such as bananas, apples, peaches, pears, nectarines
  2. Dip in tart juice from canned fruit
  3. Cover fresh cut fruit to exclude air and refrigerate

#### Frozen

- **a. Store at -10°F to 0°F. They can be kept in freezer about 1 year. Thaw in refrigerator**
- **b. Uses for frozen fruit**
  1. Served partially thawed
  2. Used in baking

### Place of Fruit in the Diet

1. Belongs to fruit-vegetable group of "Basic Four Food Groups"
2. Appetite appeal, attractive color, refreshing flavor
3. Average portion provides few calories if served fresh and/or without sugar
4. Provides fiber, particularly those with skins and seeds
5. Provides vitamins C, A, K
   - a. Conserve these vitamins through proper storage and preparation of fruit
   - b. Include one serving of high vitamin C food per day
   - c. Fruits are the principal food sources of Vitamin C

### Ways to Serve Fruit

#### A. Fruit plates—as combined salad and dessert

1. 6" salad plate or dinner plate size with protein for main dish
2. Discuss how to get pleasant arrangement of fruits and elevation in a salad plate
3. Review how to prevent enzymatic discoloration of fruits
4. Describe various greens as liners for fruit plates
5. Look up recipes for fruit salad dressings in "Food for Fifty"

#### Note: fruit salads are included in the salads module.
### Lesson Content

**B. Baked apples and/or pears**

**C. Fruit as garnish**

**D. Fruit filling—See table 1.18 approximate equivalent substitutions—**

1. Fruits may be thickened with cornstarch, waxy maize, flour or tapioca
   
   See the following guides in "Food for Fifty":
   
   - p. 313: Pies Made With Canned Fruit
   - p. 314: Pies Made With Frozen Fruit
   - p. 316: Guide for Using Frozen Fruit in Pies or Cobblers

2. Qualities of gel from the above 4 thickeners are:

### Class Activity and Evaluation

- Treat fruit with acid to prevent browning. Leave one piece untreated, exposed to air 1 hour or more
- Demonstrate proper way to peel grapefruit on cutting board—section with table knife

**Food for Fifty,** p. 68.

Assign the following to different teams:

- **a.** Prepare peach or cherry filling using cornstarch as thickener
- **b.** Prepare peach or cherry pie filling using waxy maize as a thickener
- **c.** Prepare peach or cherry filling using flour as thickener
- **d.** Prepare peach or cherry filling using tapioca as a thickener
- **e.** Display commercial canned pie filling for comparison

Evaluate quality of gels in the above using score cards.

**3. Use of commercial fruit pie fillings as desserts**

- **a.** Compare cost of commercial fruit fillings with homemade, including cost of labor
- **b.** Fruit pie fillings can be served in a variety of ways. Consider texture, color and flavor
- **c.** Evaluate desserts for attractiveness and suitability

Demonstrate ways to serve homemade or commercial pie filling with garnish to make an attractive dessert, using a variety of serving dishes and garnishes.
**Fruit Fillings**

### LESSON CONTENT

<table>
<thead>
<tr>
<th>CLASS ACTIVITY AND EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some suggested garnishes</td>
</tr>
<tr>
<td>meringue circles</td>
</tr>
<tr>
<td>pastry cut outs</td>
</tr>
<tr>
<td>whipped topping, nuts</td>
</tr>
<tr>
<td>portion of shortcake</td>
</tr>
<tr>
<td>Some suggested serving dishes:</td>
</tr>
<tr>
<td>parfait glasses</td>
</tr>
<tr>
<td>sherbet dishes</td>
</tr>
<tr>
<td>sauce dishes</td>
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<tr>
<td>disposable 5 oz. glasses</td>
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</tbody>
</table>

**VI. Assignments for next class**

- Market order

Distribute: glossary—Baker
Also see glossary, p. 78—Food for Fifty
Relative proportion of ingredients p. 70-71
FILLING PREPARATION

Among the many methods used in filling pies today, the following three are the most generally accepted:

1) Cooked Juice Method

(a) Drain juice from fruit and bring to a boil.
(b) Thicken with proper amount of dissolved cornstarch.
(c) Bring back to a boil to clarify or assure proper setting of the starch.
(d) Add granulated sugar, salt, spices, butter or other flavoring agents and stir until dissolved.
(e) Pour over drained fruit, stir carefully and do not crush the fruit.
(f) When the filling is cold it is ready for the pies.

The above method is generally used for Cherry, Apple, Blueberry, Apricot and Peach pies.

2) Cooked Fruit and Juice Method

(a) Bring juice and fruit to a boil.
(b) Add the amount of dissolved cornstarch needed to bring juice and fruit to a proper consistency. After the cornstarch is added, always bring the filling back to a boil so that it will clarify.
(c) Add the desired amount of sugar and stir until thoroughly dissolved. Care should be taken when cooking the fruit to stir occasionally to prevent the possibility of scorching.
(d) When the filling is cold it is ready for the pies.

The above method is generally used for Raisin, Pineapple and also Apple if the latter are unusually hard.

3) Home Made Method

(a) Mix the fruit with spices, flour and sugar.
(b) Fill the unbaked pie shells.
(c) Place a lump of butter or margarine on top of the filling.
(d) Cover the pie and bake as usual.

This method is very simple. However, the flour in the filling has a tendency to remain uncooked. Therefore, the consistency is not as easily controlled as in the preceding two methods.
Select and record words that best describe the products. Evaluate against characteristics of a high quality product using a 5 point scale--5=most desirable, 1=least desirable.

<table>
<thead>
<tr>
<th>Product</th>
<th>General Appearance</th>
<th>Firmness of gel</th>
<th>Color of gel</th>
<th>Clarity of gel</th>
<th>Flavor and Mouth Feel</th>
</tr>
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<tbody>
<tr>
<td>Pie filling:</td>
<td></td>
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</tr>
<tr>
<td>1. Using cornstarch</td>
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<tr>
<td>2. Using flour</td>
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<tr>
<td>3. Using tapioca</td>
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<tr>
<td>4. Commercial canned pie filling</td>
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</tbody>
</table>

Characteristics of a high quality fruit filling:

- **Color**—clear and bright
- **Gel**—Transparent and shiny, not gummy or pasty
- **Flavor**—Moderately sweet and pleasant, characteristic of the product, not flat, starchy or undercooked, spice flavor must be mild.
- **Appearance**—Fruit pieces should appear intact; apple slices will appear moist; cherries should appear plump.
- **Body and Texture**—Fruit pieces are tender and soft; juice has the consistency of a soft starch pudding.
BAKER
GLOSSARY

Absorb—Absorption—To absorb is to take in and hold; absorption refers to the ability of flour and other dry ingredients to take in and hold liquids.

Bake—Cook by dry heat in an oven or closed chamber that has been preheated.

Bag-out—Press out a prepared batter through a bag and tube, or a cookie press; produces a particular shape or design.

Bar Cookies—Made from dough which is spread onto a sheet, baked, cooled and cut into squares.

Batter—Mixture of flour, sugar, eggs, liquid, etc., which can be poured.

Beat or Whip—Mix air into a batter with a mixing machine at high speed or with a hand whip used rapidly.

Blend—Two or more ingredients gently folded or mixed together until smooth.

Breaking Down—Separation or collapse of products brought about by overcreaming or over-heating.

Cake Leavened—Leavened by the use of baking powder. Most popular method because of reduced preparation time. Doughnut mixes are usually of this type.

Choux—(chou) Pronounced "shoe". Basic batter used in making cream puffs and eclairs.

Coagulate—To clot or curdle.

Cream—Sugar and shortening mixed together to a smooth, creamy consistency before adding other ingredients.

Cream Puff—Choux shells dropped by a spoon onto a baking sheet, baked, split and filled with a cream or frosting mixture.

Cut In—To distribute fat into dry ingredients in small particles by using a chopping motion with a pastry blender or two knives.

Dissolve—Mix dry ingredients into a liquid by stirring until no solid matter is present.

Dough—Thick, soft uncorked mass of softened flour.

Dough Hook—Attachment used on commercial food mixer to blend shortening into dry ingredients.
Drop Cookies—Made from dough which is spooned or bagged-out onto sheets for baking.

Dust—To lightly cover a food or surface with a dry substance, e.g., flour on a pan, powdered sugar on doughnut.

Eclairs—Choux paste shaped through a pastry bag, baked, split and filled with cream or custard fillings. The tops may be dipped in melted chocolate icing or frosted.

Eggs—Provide flavor and color, act as thickeners, emulsifiers, binders or leaveners depending upon the food product.

Egg Wash—Mixture of egg and water brushed on the top of unbaked products to aid in browning.

Filled Cookies—Cookies which have a fruit or jam filled center.

Firm Dough—Dough which can be rolled out and cut into a variety of shapes.

Flaky—Made up of many very thin layers; such layers of dough are made by mixing fat and flour together to form small lumps. This is done in the preparation of pie crust dough.

Flavorings and Spices—Give special flavor, color and fragrance improving the taste of the end product. Some flavorings are vanilla, cocoa, cinnamon, nutmeg, salt, sugar.

Flour—Gives body or structure to the product. Flour in yeast-raised doughs forms gluten which is elastic and permits dough to stretch or expand with leavening. Types of flour are: bread, pastry, cake, whole wheat, rye and self-rising.

Foam Cakes—Cakes in which beaten eggs are used as the basic leavening agent and tenderizer.

Fold—To gently mix one substance into another by an overhand motion with a mixing spoon, spatula or beater. Generally, flour or beaten egg whites are folded into a batter.

Gradually—Act of proceeding by stages.

Grain—Cell structure or texture of a baked product.

Humidity—Water content of the air.

Ice or Frost—To apply a sugar preparation such as a frosting or icing to a baked product.

Icebox Cookies—Made from batter which is placed in the refrigerator to chill before being sliced and baked; richness of the dough makes this procedure necessary.

Leavening Agent—Substance which causes a product to rise during baking; e.g., baking powder, baking soda, yeast, air, steam.

Measure—To determine a specific amount of an ingredient.

Merchandising—The manner of presenting a product in order to create a greater demand for it.
Mix—To blend two or more ingredients into one uniform mass.

 Moist—Not dry, containing some liquid or moisture.

 Pastry—Mixture of flour, shortening, salt and water rolled flat and placed in a pie pan as a liner to hold fruit or cream fillings. The term "pie" originated in England to denote desserts with dough and fruits layered in a pan.

 Pastry Blender—Device used to cut shortening into flour before adding liquid ingredients.

 Pastry-making Methods—
 Conventional—Shortening blended with flour and salt first then water added to form dough.

 Hot Water—Shortening and hot water beaten together first then dry ingredients added to form dough.

 Oil—Dough made by adding water to mixture of oil and dry ingredients.

 Roll—To flatten a dough with a rolling pin.

 Rolled Cookies—Made from dough rolled out and cut in various forms; this cookie lends itself to special garnishes and decorations.

 Scaling—Weighing ingredients with a scale.

 Scrape—To remove clinging batter or dough from the sides and bottom of a container.

 Shortening—Imparts richness, flakiness, tenderness, flavor, texture, color and volume to a product and helps keep it fresh. Shortenings include compound-types which may be either animal or vegetable in nature, and all-hydrogenated vegetable oils.

 Sift—To pass a dry ingredient or a mixture of dry ingredients through a sieve or sifter.

 Soft Dough—Dough which lends itself to spoon-dropped or bagged-out products.

 Stir—To mix with a circular motion in combining ingredients.

 Sugar and Other Sweeteners—Improves taste, flavor, color, tenderness and helps to keep the product fresh.

 Texture—Inside grain or degree of smoothness in a product.

 Thickening Agents—Starch products used to thicken fresh and frozen pies, i.e., flour, cornstarch, and tapioca.

 Tough—Too firm in texture; too hard to chew; sometimes rubbery.

 Turnovers—Fruit filled desserts made from puff and flaky pastry.

 Volume—Size of a product.

 Wash—To brush the outside of a product with a liquid such as egg, milk or egg wash before and/or after baking.

 Whip—Incorporate air into a mixture through rapid beating.
Lesson 2: Pastry

Module 5--Desserts: The Happy Ending

I. Instructor preparation for class activities

A. Assemble the following equipment:
   Disposable aluminum pie tins
   Scales
   Mixer
   Rolling pins

B. Have available the following ingredients:
   Pastry flour
   Vegetable shortening
   Salt
   Cold water
   Pie fillings

C. Duplicate sufficient copies of these handouts:
   1. Pie Making
   2. Pastry
   3. Score Card--Pastry
   4. Possible Causes for Pastry Failures
   5. Game, Word Search: Pastry
Lesson 2: Pastry

Module 5--Desserts: The Happy Ending

I. Introduction

Any dish of fish, flesh, fowl, or fruit covered on top with a crust of some sort is a pie. In America, pies are more often than not dessert pies, baked in a shallow pan with a bottom crust. In England, this type of pie is known as a tart. There are many kinds of crusts used for pies: crumbs, meringues, biscuits, as well as regular pastry.

Americans inherit their love of pies from the English. In the 14th century, London was full of cookshops selling deep-dish meat pies with a heavy crust. The famous English mince pie, the Christmas pie that Little Jack Horner ate in his corner, evolved from these early meat pies.

When the colonists came to this country they brought with them their love for the English meat pies and dessert tarts. Until the Revolution, women continued the custom of baking pies in deep pastry shells covered with a top or "coffin". Sometime after we declared our Independence, a thrifty New England housewife realized that flat pies, or "tarts", needed less filling, and now the traditional American pie is a flat one.

Several pies are particularly associated with the United States. There is the pumpkin pie, a refinement of the first pumpkin pies that were merely hollowed-out whole pumpkins; the molasses-flavored shoo-fly pies of the Pennsylvania Dutch; and most famous of all--American apple pie.

II. Pie crusts:
A. Flaky--in which flour and fat are mixed only until fat is size of large beans. Flakiness is achieved by having fat particles separate layers of dough. The fat melts, forming a pool, steam forms here, and raises the dough.
B. Mealy--Mix flour and shortening to consistency of course cornmeal. Mealy crusts soak less than others and so they are used for custard pies, pumpkin pies and other pies where an uncooked filling is put into an unbaked crust.

Discuss handout #1--Pie Making

Instructor or student prepare one recipe mealy pie dough as a demonstration.
Optional: Slurry method of combining ingredients may be demonstrated.
III. Ingredients

A. Pastry flour--Use soft wheat flour. Stronger flour requires larger proportion of fat.

B. Fat--Shortens the dough and makes a tender product.
   1. Vegetable shortening--of plastic consistency
   2. Some people object to taste of lard
   3. Butter improves flavor, but contains some water

C. Salt--usually dissolved in water

D. Water--must be very cold

E. All ingredients should be cold to prevent gluten formation

F. Vinegar, baking powder, etc. do not improve the pie crust

IV. Assembling ingredients--Pie dough must not be overmixed--mix only enough to distribute water. A pie dough is better if it is left to stand for at least 15 minutes after mixing. The dough is easier to roll and baking shrink of the dough is less.

V. Rolling pie dough

A. Single-crust pies--Single-crust pies have only a bottom crust. They can be prebaked and filled with a cream pudding filling and topped with a meringue or whipped cream or can contain a filling added to the unbaked crust and baked, as for a custard, pumpkin, or pecan pie.

B. Double-crust pies--are usually filled with fruit and topped with a top crust sealed around the edge to the bottom crust.

VI. Pie trimmings--When pie crusts are being rolled out, care should be taken to keep the size of each piece as close as possible to the size of the pans, thus keeping pie trimmings to a minimum. Pie trimmings should not be used to make up more than 50% of the piece of dough and should be used for bottom crusts only.

CLASS ACTIVITY AND EVALUATION

Handout #2--Pastry
Demonstration of adjusting recipes

Discuss different methods of mixing pie crust and the various ingredients used.

Each student mix a household recipe of pastry. Roll one or more pie crusts, bake and score.

Experiment--reroll the remaining dough 5-8 times: roll 1/8 inch (0.3 cm) thick; place on baking sheet; prick; bake. Compare with pastry shell for tenderness and flakiness.
VII. Filling and Meringue--A 9-inch pie requires 3 to 4 cups of filling. A meringue or whipped cream takes up some space so less filling can be used. Management should see that pie markers are used so all cuts are the same at service. Some pies are of better quality if slightly warm at service.

VIII. Baking pastry

A. Pie washes--Milk, cream, eggs and milk, melted butter and water are the various kinds of pie washes used to improve eye appeal of pie crusts. The type used depends upon the finish required on the particular product.

B. Temperature: Bake in a 425° F. (220° C.) oven for 8-10 minutes or until very pale golden brown. If air is trapped under the pastry, the crust will tend to "hump" during the baking period. Check the pastry shell after the first 4 or 5 minutes of baking. If the pastry is bulging up from the bottom of the pan, quickly prick the pastry before it is "set" with baking.

IX. Pie Fillings

A. Fruit pie
B. Cream pie
C. Chiffon pie
D. Soft pie
E. Specialty pies

X. Commercial frozen pies

A. Quality
B. Cost per portion

Pies and pastries are popular desserts but they require considerable labor and expensive ingredients. Many operations now purchase ready-made pies and pastries; they do not have the specialized labor to make these products.

Discuss popular varieties of pie and examine recipes in Food for Fifty.

If time permits, students will prepare double crust fruit pies and single crust cream pies with meringue or whipped topping.
## LESSON CONTENT

<table>
<thead>
<tr>
<th>XI. Scoring pies and pastry</th>
</tr>
</thead>
<tbody>
<tr>
<td>XII. Portioning</td>
</tr>
<tr>
<td>Pie Marker</td>
</tr>
<tr>
<td>XIII. Make reading assignment for next class</td>
</tr>
<tr>
<td>Select recipes for next class</td>
</tr>
<tr>
<td>Prepare market order</td>
</tr>
</tbody>
</table>

## CLASS ACTIVITY AND EVALUATION

- Betty Crocker Score Card for Pastry--Handout #3
- Possible Causes for Pastry Failure--Handout #4
- Demonstrate cutting and serving pies--5, 6, 7 pieces per pie
Pie Crusts

There are two basic types of pie crusts—flaky pie crust and mealy pie crust. Although they may contain identical ingredients in the same amounts, the results may be quite different.

Flaky crust is made by rubbing the flour and shortening together until they become nuggets the size of large dry beans before adding the liquid and salt.

Mealy crust is made by rubbing the flour and shortening together until there is a fine distribution of the shortening through the flour, which becomes like meal, before adding the liquid and salt.

The essential ingredients that go into the making of good pie crust are flour, vegetable shortening (with some butter added), salt, and cold water. The salt is usually dissolved in the water. Some formulas may call for other ingredients, such as vinegar or baking powder; but these items do not improve the crust. One important point is never to overmix pie dough.

When crusts are being rolled out, care should be taken to keep the size of each piece as near as possible to the size of the pans, thus keeping the size of the trimmings to a minimum. Pie trimming should be used to make no more than 50 per cent of a crust and used for the bottom crust only.

Starches and flour are used as thickening agents in pie fillings. Starches are used more often since they do not have a tendency to discolor and become gummy. From two to five ounces of cornstarch for a quart of liquid is the approximate amount used in the preparation of different fillings.

Pie Fillings

There are four main types of pie fillings:

1. Fruit pie. The most popular fruit pies are apple, pineapple, cherry, apricot, peach, and prune. The fruit used may be fresh, frozen, canned, dried, or prepared pie filling.

2. Cream pie. Vanilla, chocolate, butterscotch, banana, and coconut are the most popular cream pies. Care should be taken to acquire a good smooth cream with a delicate flavor. This cream filling is always placed into pre-baked pie shells.

3. Chiffon pie. Both cream pies and fruit pies may be converted into chiffon pies by folding the meringue into the mixture.

4. Soft pie. Pumpkin, sweet potato, squash, custard, and pecan pies are known as "soft" pies. They require a deep pie plate with an additional fluted pie crust rim. Soft pies are made with an unbaked crust and uncooked filling. The filling is "set" during the baking process because it contains eggs which help in the coagulation.
1. A good pastry is light, crisp, tender, and a golden brown color. It may be flaky, semi-flaky or mealy, depending on the type of crust. The appearance on the surface is rough and blistered, depending on the flakiness of the crust.

2. Firm plastic fats (shortening or lard) are more desirable for pastry. Moisture present in butter (80% fat) or margarine develops the gluten in flour, making a tough crust.

3. All-purpose flour is very good for a flaky crust. Pastry flour produces a more tender, less flaky crust that is hard to handle.

4. Salt adds flavor. Salt may be added either to flour or water.

5. Cold water (40° F.) is used for pastry. Too much water causes toughness; not enough water makes a crumbly mess.

6. Using dough hook attachment on large mixer, blend fat, flour with mixer at low speed until fat is dispersed in flour about the size of peas. Timing in breaking up the fat or shortening into particles is the most important factor in mixing dough by machine.

7. Dissolve salt in water (cold). Add slowly to mixture and blend. Handle as little as possible. Press together and chill in refrigerator.

8. Using a dough cutter and scales, scale off 5 ounces for bottom crusts of 9 inch pans. Shape with hands and place in center of lightly floured board or baker's table.

9. Roll out in circular form so dough is of even thickness and will fill a pan with 3/4 in. overlap for bottom crust or 1/2 in. overlap for pie that will have a top crust. Don't handle, knead or reroll unnecessarily.

10. Use the right size of pan:
   - 4 oz. for 8" tin
   - 5 oz. for 9" tin
   - 4 lb. for 1/2 size pan
   - 8 lb. for 18 x 26" sheet pan

11. Place dough in center of pan. May be rolled over rolling pin or over palm of hand to transfer to pan. Flute edges. Trim off excess dough. Prick bottom with fork. Bake at 425° F. about 10 minutes.

12. A soggy bottom crust of a fruit pie may be caused by using a shiny pie pan, or placing pie pan on a cookie sheet or aluminum foil.
# Betty Crocker Pastry Score Card

## Appearance Score
Golden brown color; blistery surface; uniform, attractive edges; fits pan well.

<table>
<thead>
<tr>
<th>Score</th>
<th>Points</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfect</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Fair</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**Poor Characteristics:**
- Burned
- Pale, dull color
- Smooth, not blistery surface
- Uneven edge
- Shrunken
- Large air bubbles

**Here's Why:**
- Overbaking
- Underbaking, overhandling
- Overhandling, too much flour when rolling
- Crust not rolled in even circle, not careful enough in shaping crust in pan
- Stretched crust when easing into pan
- Not pricked well enough

## Tenderness Score
Cuts easily with table knife or fork but holds shape when served.

<table>
<thead>
<tr>
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<th>Notes</th>
</tr>
</thead>
<tbody>
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<td>2</td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**Poor Characteristics:**
- Tough, rubbery
- Too tender, falls apart

**Here's Why:**
- Too much water and overhandling
- Undermixing, not enough liquid, too much shortening

## Texture Score
Flakes layered throughout crust; crisp eating.

<table>
<thead>
<tr>
<th>Score</th>
<th>Points</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>Fair</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**Poor Characteristics:**
- Compact, doughy
- Dry, mealy

**Here's Why:**
- Underbaked, too much liquid
- Shortening cut-in too finely, not enough liquid

## Flavor Score
Pleasant, bland flavor to enhance the filling.

<table>
<thead>
<tr>
<th>Score</th>
<th>Points</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
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<td>2</td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**Poor Characteristics:**
- Burned
- Rancid
- Raw

**Here's Why:**
- Overbaked
- Poor quality shortening, overbaked
- Underbaked

## Now Add Up Your Score:

<table>
<thead>
<tr>
<th>Score</th>
<th>Appearance</th>
<th>Tenderness</th>
<th>Texture</th>
<th>Flavor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Points</td>
<td>Points</td>
<td>Points</td>
<td>Points</td>
<td>Points</td>
</tr>
</tbody>
</table>

**If perfect, your total would be 16. How near Perfect did your pastry score?**


**SCORE CARD E - PASTRY**

*Betty Crocker Pastry Score Card*

<table>
<thead>
<tr>
<th>APPEARANCE SCORE</th>
<th>Poor Characteristics:</th>
<th>Here's Why:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golden brown color; blistered surface; uniform, attractive edges; fits pan well.</td>
<td>Burned</td>
<td>Overbaking</td>
</tr>
<tr>
<td><strong>PERFECT</strong>.......4 POINTS</td>
<td>Pale, dull color</td>
<td>Underbaking, overhandling</td>
</tr>
<tr>
<td><strong>GOOD</strong>..........3 POINTS</td>
<td>Smooth, not blistered surface</td>
<td>Overhandling, too-much flour when rolling</td>
</tr>
<tr>
<td><strong>POOR</strong>.........1 POINT</td>
<td>Uneven edge</td>
<td>Crust not rolled in even circle; not careful enough in shaping crust in pan</td>
</tr>
<tr>
<td>Poor Characteristics:</td>
<td>Shrunken</td>
<td>Not pricked well enough</td>
</tr>
<tr>
<td></td>
<td>Large air bubbles</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TENDERNESS SCORE</th>
<th>Poor Characteristics:</th>
<th>Here's Why:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cuts easily with table knife or fork but holds shape when served.</td>
<td>Tough, rubbery</td>
<td>Too much water and overbaking</td>
</tr>
<tr>
<td><strong>PERFECT</strong>.......4 POINTS</td>
<td>Too tender, falls apart</td>
<td>Undermixing, not enough liquid, too much shortening</td>
</tr>
<tr>
<td><strong>GOOD</strong>..........3 POINTS</td>
<td>Underbaked, too much liquid</td>
<td></td>
</tr>
<tr>
<td><strong>POOR</strong>.........1 POINT</td>
<td>Shortening cut-in too finely, not enough liquid</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEXTURE SCORE</th>
<th>Poor Characteristics:</th>
<th>Here's Why:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flakes layered throughout crust; crisp eating.</td>
<td>Compact, doughy</td>
<td>Underbaked, too much liquid</td>
</tr>
<tr>
<td><strong>PERFECT</strong>....4 POINTS</td>
<td>Dry, mealy</td>
<td>Shortening cut-in too finely, not enough liquid</td>
</tr>
<tr>
<td><strong>GOOD</strong>........3 POINTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>POOR</strong>.......1 POINT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FLAVOR SCORE</th>
<th>Poor Characteristics:</th>
<th>Here's Why:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pleasant, bland flavor to enhance the filling.</td>
<td>Burned</td>
<td>Overbaked</td>
</tr>
<tr>
<td><strong>PERFECT</strong>..4 POINTS</td>
<td>Rancid</td>
<td>Poor quality shortening, overbaked</td>
</tr>
<tr>
<td><strong>GOOD</strong>......3 POINTS</td>
<td>Raw</td>
<td>Underbaked</td>
</tr>
<tr>
<td><strong>POOR</strong>.....1 POINT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOW ADD UP YOUR SCORE:**

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Tenderness</th>
<th>Texture</th>
<th>Flavor</th>
<th>TOTAL</th>
</tr>
</thead>
</table>

If perfect, your total would be 16. How near PERFECT did your pastry score?
<table>
<thead>
<tr>
<th>Difficulty</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crust shrinks excessively.</td>
<td>Not enough shortening; too much water; dough mixed too much; stretching dough while placing it in pans; or too slow an oven.</td>
</tr>
<tr>
<td>Crust is tough.</td>
<td>Too much water; dough mixed too much; not enough shortening; or too much flour on rolling board.</td>
</tr>
<tr>
<td>Pastry shell has large air bubbles.</td>
<td>Pastry fitted into pans too tightly; too slow an' oven; or pastry not pricked enough</td>
</tr>
<tr>
<td>Under crust is soggy.</td>
<td>Too slow an oven; pastry rolled too thick; not enough bottom heat; pie underbaked; or filling too thin</td>
</tr>
<tr>
<td>Pies stick to pans.</td>
<td>Boiled over filling; wet pans; new pans; or uneven heat circulation.</td>
</tr>
<tr>
<td>Fruit boils out.</td>
<td>Oven too hot; lack of holes in top crust; crust edges not properly sealed; or too much filling in pans</td>
</tr>
<tr>
<td>Custard type pies curdle or crack.</td>
<td>Over-baking; not enough moisture; too much flour or starch; or too many eggs.</td>
</tr>
<tr>
<td>Lemon or cream pies crack.</td>
<td>Too much starch in filling; too many eggs in filling; or filling lacks fat.</td>
</tr>
<tr>
<td>Fillings break down.</td>
<td>Too much acid in the filling or cooling too slowly.</td>
</tr>
<tr>
<td>Meringue shrinks.</td>
<td>Moisture in egg whites; whites under-whipped; filling too thin; insufficient sugar; or pies stored in closed containers.</td>
</tr>
<tr>
<td>Crust does not brown.</td>
<td>Too little fat; too much water; too much flour on board; overmixed; rolled too thick; oven temperature too low.</td>
</tr>
</tbody>
</table>
Word Search: Pastry

Directions: There are 50 terms relating to pastry hidden in the puzzle below. Using the clues to help you remember the terms, circle the words as you find them. Then look back over the puzzle and write down all of the uncircled letters in order from left to right in the spaces at the end of the clues. This will give you a "secret" sentence that offers good advice!

CONVENTIONAL AT TICE PUMPKIN
O G T F L O U R H F E I W A P P L E A P E C A N A
CREAMY REFRIGERATOR SPRINKLES
O E Y C O UN HL O A H S T A R C H T O I L S B H
N E F O R K O B U Z N T D S L F A T R C N E T A O
U C H L E D V E T E O U S H E L L S Y H G G H N R
T E N D E R E F E N W I L L E M O N B I U M E A T
F L A K Y L R O L L I N G P I N R D L F E E C N E
W A X E D T S R S A L T R E R M W I E F S P H A N
A N E F O I L E C H O C O L A T E I N O H E E S I
T P E V A N I L L A S U O C C E S S D N S A E O N
E I F C U S T A R D R Y M I X E S Y E O U C S R G
R E C I P E S U G A R P A S C H E R R Y T H E R Y

Clues:
1. The term meaning separated into thin layers is __________.
2. To crimp or twist the edge of pastry with fingers is to __________.
3. Beaten egg white and sugar mixtures are called __________.
4. This type of pie was first made by pioneers.
5. This is the country where pies supposedly originated.
6. __________ is the fruit that is America's favorite for pie.
7. This fruit often is associated with George Washington.
8. Pastry means dough rich in __________.
9. This ingredient provides the structure in pastry.
10. This ingredient is added to pastry for flavor.
11. Butter or margarine would make pastry less __________.
12. This type of vegetable fat is very good for making pastry.
13. These fats make pastry that is mealy.
14. The usual liquid in pastry is __________.
15. The common method of making pastry is __________.
16. This is a useful tool for cutting shortening into flour.
17. This is the best tool for mixing the liquid into the flour and shortening.
18. The temperature of water should be __________ so it doesn't melt the fat.
19. Roll pastry between sheets of ______ paper.
20. This is the best tool for rolling out pastry.
21. Milk and egg mixture baked with the pastry.
22. Before baking a pie shell, you should ______ the sides and bottom.
23. For a two-crust pie, cut ______ in the top to allow steam to escape.
24. Cover the fluted edge of a two-crust pie with ______ to prevent overbrowning.
25. Strips of pastry woven across the top of a filled pie is called ______
26. This common type of nut is used in a custard-type pie.
27. This type of pie is filled with a pudding mixture.
28. Pastry desserts should be served with a ______ meal.
29. The usual thickening ingredient for pudding-type fillings is ______.
30. This citrus fruit juice often is made into a cream pie filling.
31. Folded-over squares of filled pastry are ______
32. This dairy product may be sprinkled on pastry strips.
33. One food that could be used as a filling for main-dish pies is ______.
34. Pastry is very high in ______.
35. This white, flaked fruit may be added to vanilla cream pie filling.
36. Custard, cream, and main-dish pies should be stored in the ______.
37. Convenience pastry and pie fillings are sold as ______ ______. (2 words)
38. These convenience pies may require baking or thawing or be ready to eat.
39. The cacao-bean product often used for cream pie fillings is called ______
40. One type of convenience item is frozen pie ______
41. To most of us, pastry means ______.
42. Most pies should be frozen ______ baking.
43. Miniature or individual pies are called ______.
44. This extract usually is used in flavoring cream pie fillings.
45. This tropical fruit often is sliced raw into cream pie fillings.
46. A cooked gelatin mixture made fluffy with beaten eggs is ______.
47. Most pie fillings contain ______ for sweetness.
48. This yellow fruit with one large seed makes delicious pies.
49. Most fruit pies may be stored at ______ temperature.
50. For any pastry product, it's important to follow the ______ correctly.

"Secret" sentence:
**Word Search**

```
CONVENTIONALLATICEPUMPKIN
OGTFLOURHEIVERAPPLEAPECANA
CREAMYREFRIGERATORSPRICKS
OYEOUNHLIOAHSTARCTOILS
NEFORKOBUSNTDSLFATRCNETHY
UCHLEDVOTEOUSHELLSYHGGHN
TENEREFENWILLEMONBIGUMEA
FLAKYLROLLINGPINRDLFECE
WAXEDTSRALTTERMIEFSPHAN
ANEFOILECHOCOLATEINOHEES
TPEVANILLASUCCESSDNSAEON
ELFCUSTARDRYMIXESYEOUTCRG
RECIPESUGARPASCHERRETYTHERY
```

Clues:
43. Tarts; 44. Vanilla; 45. Bananas; 46. Chiffon; 47. Sugar; 48. Peach; 49. Room; 50. Recipe

"Secret" sentence: The way you handle the dough will determine the success of your pastry!
FOOD SERVICE EMPLOYEE SHORT COURSES

Lesson 3: Puddings, Custard and Soft Meringues

Module 5--Desserts: The Happy Ending

I. Instructor preparation for class activities

A. Assemble the following equipment:
   - Steam Jacket
   - Kettle
   - Double boiler
   - Mixer
   - Scales
   - Wire' Whip
   - Baking dishes
   - Measuring spoons

B. Have available the following ingredients:
   - Flour
   - Cornstarch
   - Tapioca
   - Waxy Maize
   - Eggs
   - Milk
   - Cocoa
   - Sugar; brown and white
   - Flavorings
   - Lemon juice
   - Instant pudding, chocolate
   - 1 can Tapioca pudding

C. Duplicate sufficient copies of these handouts:
   1. Score Card for Puddings and Desserts
   2. Soft Meringue Preparation
   3. Game: Scrambled Words: Desserts
Lesson 3: Puddings, Custard and Soft Meringues

Module 5--Desserts: The Happy Ending

### LESSON CONTENT

I. Review regulations covered in lesson one

II. Principles of starch cookery:

A. Starches frequently used as thickeners are:
   1. Those derived from grain
      a. Cornstarch--has about twice thickening power of flour--makes a clearer sauce than with flour
      b. Waxy maize is a modified cornstarch used when the product is to be frozen because it will not separate as readily as one with flour or cornstarch. However, it makes a weak gel.
      c. Wheat starch (flour) which is a mixture of starch and protein, so nearly double the amount is needed.
   2. Those derived from roots such as tapioca and arrowroot.
      a. Thickens at a lower temperature than flour: (140°F.)
      b. Tend to become thin and gummy when heated over long periods
   3. Pregelatinized, in which the starch has been pre-cooked so that it thickens without heating--Example: in "instant" puddings or "instant" pie glaze

B. Gelatinization
   1. A process in which the starch absorbs water and swells
   2. Is accelerated by heat
   3. When starch can absorb no more water, thickening is optimum

C. Separating starch granules before heating to prevent lumps by
   1. Coating starch granules with fat (a roux) then adding hot liquid cook until thick
   2. Blending starch and sugar, then adding to liquid
   3. Mixing cold liquid with starch, then adding to hot liquid

D. Equipment used in preparation of pudding, custards and soft meringues
   Demonstrate operation of steam jacketed kettle
   - Steam jacketed-kettle
   - Double-boiler
   - Pan on-top of stove
   - Oven

### CLASS ACTIVITY AND EVALUATION

Prepare 1 household size recipe chocolate pudding using cornstarch

Prepare 1 household recipe of the same pudding using flour

Prepare 1 household size recipe tapioca pudding

Prepare a 3 oz. package instant chocolate pudding

Use 1 #2 can commercial tapioca pudding for comparison

Serve above puddings with a variety of garnishes
### Lesson Content

#### E. Effect of under cooking

1. During early stages, starch granules hold water loosely. If cooking stops at this stage, the gel collapses. A watery, weepy mixture results.
2. If using cornstarch, be sure "raw starch" taste is gone.

#### F. Effect of overstirring:

1. Overstirring causes breakdown of starch gel. Cook starch mixtures quickly.

#### G. To avoid scum forming on cooked pudding, place sheet of plastic wrap directly on surface while cooling.

### III. Function of ingredients in pudding and custards

#### A. Eggs

1. Add thickening, color and flavor, volume and tenderness to finished product. Thickening power is from coagulation of protein.
   a. Because starches require high temperatures to gelatinize the starch granules, and egg protein requires lower temperature to avoid curdling. Add eggs last. Mix a small amount of hot pudding to beaten eggs, then stir into pudding during last 1 or 2 minutes of cooking.

#### B. Sugar—Tenderizes

1. Too much makes a syrupy product and interferes with thickening of the eggs and starch.
2. Always use tested recipes and follow carefully.

#### C. Acid

1. Breaks down starch gel, reducing its thickening power.
2. Examples are lemon juice in lemon pudding and brown sugar in butterscotch pudding.
   a. Add acid after starch is completely cooked and partially cooled; there is very little thinning effect.

#### D. Nutritional contribution of milk and egg desserts

1. Protein and calcium from milk.
2. Protein and vitamin A in eggs.

### Class Activity and Evaluation

Prepare lemon pie filling from a household size recipe or lemon filling (for cake) page 186, Food For Fifty.
IV. Custards—use a thermometer. Bake at 350° to internal temperature of 185°. Baking time is critical factor. A custard is completely cooked when a pointed knife inserted into it comes out clean. Cooks usually tell when a custard is done by shaking it slightly in the oven. It is removed while the center is still slightly soft so that cooking finishes from the heat in the custard. Bake in a water bath. Test with knife: overcooking results in syneresis. Custards prepared with whole milk or light cream are less prone to syneresis. The egg protein forms a network with water in the milk. (Visualize a honeycomb filled with honey). Too high heat squeezes out water. Too much liquid makes a watery custard. Accurate measurement a must. Remember that custard continues to cook after removal from oven.
Examples of custards are:
  - Stirred custard
  - Custard pie
  - Cup custard
  - Pumpkin or squash pie
  - Quiche Lorraine
  - Baked fondues

V. Soft Meringues
Foam structure formed by air dispersed throughout egg white, becomes rigid when baked. Salt, vanilla and cream of tartar, (if used) are added to egg white at foamy stage. When foam holds soft peaks, sugar is added gradually but quickly and beaten at high speed until stiff, but not dry. (only the tip of the peak falls over when beater is pulled from foam). Avoid over beating to dry stage. Very important that all utensils and ingredients be free of fat. Greater volume results if room temperature egg whites are used.

VI Handling and Storing prepared puddings and custards
A. Chill creamed puddings and custards 2 hours before serving
B. Store in refrigerator. Serve within 24 hours
C. Microorganisms grown in milk and egg mixtures very easily.

CLASS ACTIVITY AND EVALUATION
Prepare baked custard, Food For Fifty, page 364. Bake 1/4 as cup custard, 1/2 as rice custard and 1/4 as bread pudding
Optional: Compare with custard made from mix.
Prepare 1/2 recipe meringue for pies, Food For Fifty, page 312. Demonstrate covering pudding with meringue and browning in oven.
## Lesson Content

**VII.** Score prepared products using attached score card

**VIII.** Make reading assignment for next class
   - Select recipes to be prepared at next class
   - Prepare market order

## Class Activity and Evaluation

While some students are waiting for products to chill, play game: Scrambled words: Desserts
## SCORE CARD FOR PUDDINGS AND DESSERTS

Evaluate against characteristics of a high quality product using a 5-point scale--5=most desirable, 1=least desirable.

<table>
<thead>
<tr>
<th>Product</th>
<th>Appearance</th>
<th>Flavor</th>
<th>Tenderness</th>
<th>Consistency</th>
<th>General Acceptability</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1. Chocolate pudding using cornstarch</td>
<td></td>
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<tr>
<td>#2. Chocolate pudding using flour</td>
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<tr>
<td>#3. Chocolate instant pudding</td>
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<tr>
<td>#4. Tapioca pudding</td>
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<tr>
<td>#5. Canned tapioca pudding</td>
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<tr>
<td>#6. Lemon filling</td>
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<tr>
<td>#7. Baked custard</td>
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<tr>
<td>#8. Rice custard</td>
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<tr>
<td>#9. Bread pudding</td>
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<tr>
<td>#40. Soft meringue</td>
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</tbody>
</table>

### CHARACTERISTICS OF HIGH QUALITY BAKED CUSTARDS
- **Appearance:** Pale golden brown surface.
- **Consistency:** Even gel structure which holds a clear, sharp cut edge.
- **Flavor:** Nutmeg may mask slight egg flavor.

### CHARACTERISTICS OF HIGH QUALITY STARCH-EGG PRODUCTS
- **Appearance:** Puddings or cooked fruit salad dressing have shiny surface. Film forms on top as cooked mixture cools.
- **Consistency:** Puddings will "mound" on serving spoon or as a pie filling be firm enough to retain a firm, clear-cut edge. Smooth.
- **Flavor:**
  - Chocolate Pudding: Distinct chocolate, slightly sweet, well-rounded flavor; not bitter, flat or starchy.
  - Tapioca Pudding: Sweet with slight egg and slight vanilla flavor.
  - Lemon Pudding: Tart lemon, not too sour.

### CHARACTERISTICS OF HIGH QUALITY MERINGUE
- **Appearance:** Top is golden brown with peaks slightly darker, top surface is uneven.
- **Texture:** Even distribution of small gas holes; cell walls are thin.
- **Tenderness:** Top crust may be slightly tough to cut through, interior is easily cut with a knife and leaves a clean-cut edge.
- **Flavor:** Mild, sweet.
SOFT MERINGUE PREPARATION

1. Fat interferes with foam formation; utensils and egg whites should be free of fat.

2. Egg whites should be beaten to soft foam with whip. Egg whites should be at room temperature.

3. Sugar should be added gradually at the rate of 2 T. per egg; beat until sugar is dissolved. The sugar should be very fine. If the sugar is not completely dissolved by beating, beads of moisture may form on baked meringue. Too much sugar will produce a sugary meringue which will stick to the knife when cut; too little sugar will cause meringue to be tough.

4. Acid helps stabilize the foam of egg whites; cream of tartar or lemon juice may be added to the egg whites.

5. Meringue should be attached securely to the crust and spread by working from the edge to the center. A nine-inch pie requires 4 to 5 ounces of meringue to cover it well.

6. Meringue should be baked at 375°F. about 10 minutes; overbaking or baking at too low temperature may cause shrinkage.

7. The process of baking meringue is one of drying and browning.

8. Soft meringues are used to add to the attractiveness of pies, puddings, and tarts. Meringues may be applied in fancy shapes or designs.

9. Hard meringues contain more sugar and are baked separately.
Scrambled Words: Desserts

Directions: Read each clue to help you unscramble the scrambled words. Write the correct answer on the blank.

1. fruits stewed in a syrup
2. what the French call cornstarch pudding
3. easiest dessert to prepare
4. fruit topped with coconut
5. milk desserts thickened with starch
6. milk and egg mixture cooked in an oven
7. soft custard topped with meringue
8. fruit gelatins which have been beaten
9. gelatin and egg white mixtures
10. an egg-yolk custard with gelatin
11. gelatin and whipped cream mixtures molded with ladyfingers or cake
12. gelatin and whipped cream mixtures molded without cake
13. thin sponge cake with filling rolled inside
14. sweetened fruit encased with sweet biscuit dough
15. fruit fillings topped with biscuit dough
16. soft dough pastry in a round shape
17. soft dough pastry in a rectangular shape
18. frozen mixtures of fruit juices, sugar, and egg whites or gelatin
19. type of ice cream that contains egg
20. sweetened whipped cream and flavoring frozen without stirring
Scrambled Words
1. COMPOTE; 2. BLANC MANGE; 3. FRESH FRUIT; 4. AMBROSIA; 5. PUDDINGS;
6. BAKED CUSTARD; 7. FLOATING ISLAND; 8. GELATIN WHIPS; 9. SNOWS;
10. SPANISH CREAM; 11. CHARLOTTE; 12. MOUSSES; 13. CAKE ROLL;
14. DUMPLINGS; 15. COBBERS; 16. CREAM PUFFS; 17. ECLAIRS; 18. SHERBETS;
19. FRENCH; 20. PARFAITS
Lesson 3: Cookies

Module 5--Desserts: The Happy Ending

I. Instructor preparation before class

A. Have available the following ingredients:
   8 oz. Margarine
   4½# Sugar
   22 Eggs
   ½ c. Vanilla
   2# Flour
   5 t Salt
   5 t Baking powder
   4 oz. Cornflakes
   28 oz. Nuts
   3 oz. Coconut
   2 t Soda
   2# Fat
   1# Brown Sugar
   1# Rolled dates quick uncooked
   12 oz. Cake Flour
   8 oz. Cocoa

B. Assemble the following equipment:
   5 sheet pans
   #50 & #60 dipper
   6 sets measuring cups
   6 sets measuring spoons
   Wax paper
   Sifters
   Mixer & Attachments
   Mixing bowl
   Rubber spatula
   Scales
   Knives
   Rolling pin
   Cookie cutter
   Tea spoons (4)
   Plates for displaying
   Custard cups

C. Duplicate sufficient copies of these handouts:
   1. Types of Cookies
   2. Organizing Work for Cookie Baking
   3. Common Difficulties in Making Cookies
   4. Betty Crocker Score Card for Cookies
   5. Cookie Defects and Causes
   6. Cookie Crossword Puzzle
   7. Cleaning Mixer and Range Ovens
Lesson 4: Cookies

Module 5--Desserts: The Happy Ending

LESSON CONTENT

Introduction--

At one time, what we now call a cookie was referred to as a small cake or sweet biscuit. We must thank the Dutch for providing us with a special name for it. It is derived from Koekje or Koekie, meaning a "small cake." The word "cookie" is an American usage; in England what we know as cookies are called biscuits.

There are more varieties of cookies than of any other baked product because there are so many different shapes, sizes, textures and flavorings possible. To the basic ingredients, often the same as those used in cakes, all kinds of flavorings may be added: extracts, spices, nuts and fruits. Decorations of every sort are always in order.

Cookies should be baked fresh daily if possible. When it is found necessary to bake ahead, a week's output can be prepared in advance and properly stored.


I. Types of cookies--Discuss handout #1

A. Rolled
B. Refrigerator
C. Bag-or pressed
D. Sheet
E. Bar
F. Dropped
G. Filled

II. Organizing work for cookie baking--Handout #2

III. Portion control in cookie preparation

IV. Time and motion economy in preparation of cookies

CLASS ACTIVITY AND EVALUATION

Distribute Handout #1--Types of cookies. Examine recipes in Food for Fifty beginning on p. 218 for examples in which these methods are used.

Discuss Handout #2

Discuss equipment for and methods of portioning for each of the types of cookies

Demonstrate time & motion principles--applicable here
### LESSON CONTENT

**V. Baking cookies**
Cookies are normally baked at higher temperatures than cakes and must be watched carefully, for too much baking overcolors the cookies and ruins their flavor. Chocolate cookies, especially, burn easily. When cookies are done, they are of the proper color and spring back slightly to the touch.

Crisp cookies may be soft while still warm but crisp on cooling. After baking, protect cookies from drafts and too rapid cooling. Many cookies should be removed from the pans while still warm.

**VI. Common Difficulties Encountered in Making Cookies. The Causes and How To Prevent.** Handout #3.

**VII. Preparation of four basic types of cookies**—(Food for Fifty)

1. **Rolled:** Sugar cookies—p. 226 (Make 3 variations)
2. **Dropped:** Cornflake kisses or macaroons—p. 220
3. **Refrigerated:** Oatmeal crispies—p. 232
4. **Bar or sheet:** Brownies—p. 222

**III. Evaluation**—Using scorecard (Handout #4)

A. **Cookies Defects and Causes**—Handout #5

**IX. Portion Control Review**

**X. Costing of recipes** (optional)

**XI. Storing cookies**
Most cookie batters or doughs freeze well except foam types. Stiff doughs should be thawed under refrigeration but softer mixes may be thawed at room temperature. Do not pack cookies while warm. Store into airtight containers or drawers. Frozen cookies thaw in opened packages in about 15 to 20 minutes. Sometimes a moist cut apple is stored with soft cookies to keep them moist. Do not stack soft cookies. Foam-types dry out easily so make these in batches that are used quickly and store in airtight containers.

**XII. Cookie crossword puzzle** (optional)—Handout #6

**III. Using mixer and range ovens**—Handout #7
TYPES OF COOKIES

A. Rolled: Made from a rather stiff dough and rolled on a lightly floured board. The dough will be easier to handle if chilled first. Use pastry cloth and roll to 1/8 inch thick. Cut to desired shape and size with a cookie cutter, or using pastry cutter, cut dough in diamond shape. Avoid rerolling.

B. Refrigerator: Made by slicing a comparatively rich dough which has been thoroughly chilled. Weigh dough at 1 lb. 8 oz. and roll into bars 18 inches long. Roll in waxed paper and place rolls on sheet pans. Refrigerate over night. Slice into 1/4 inch strips and bake.

C. Bag or Press: Put mixture into pastry bag or cookie press with desired size and shaped tube. Press directly into sheet pans. Be sure pans are cool. Garnish, if desired, and bake.

D. Sheet: Made from a stiff batter spread onto sheet pans to bake. Cool and cut into squares or oblongs. Sheet cookies are somewhat cake-like.

E. Bar: Scale dough in 1 lb. pieces and form into a 1 inch wide strip the length of a sheet pan. Place 3 stripes per pan, leaving space between. Flatten with fingers. Bake and cut diagonally into bars.

F. Dropped: Drop mixture on sheet pans with a spoon or ice cream scoop. A No. 40 size will give a cookie approximately 3 inches in diameter and a No. 60 will yield a cookie approximately 2 inches in diameter depending, of course, on the stiffness of the dough. Chilled dough can be formed into strips and cut into ½ oz. pieces. If a dough is rich, it will spread by itself. If necessary, it can be flattened with a fork or cookie die.

G. Filled: Filled cookies are made by placing such foods as fruits, jelly, and mincemeat between two layers of shaped cookie dough. The edges are pressed together before baking to prevent leakage of the filling.
ORGANIZING WORK FOR COOKIE BAKING

A. Use tested, accurately standardized recipes; read them carefully; and follow them accurately. In standardized recipes, the ingredients have been carefully chosen and balanced. Any changes may alter results.
   1. Do not alter amounts of ingredients. Do not substitute one ingredient for another.
   2. Use correct standardized tools as measures and use level measurements. This is the only way you will obtain standard results each time.

B. Use correct size pans.
   1. For a cake, use the size pan specified by the recipe. If a pan is too large, the batter is not deep enough and a dry, heavy cake results. If pan is too small, the cake may fall during baking.
   2. Use shallow cookie sheets for cookies. If a pan is too deep, cookies may burn on the bottom and not brown on the top.
   3. Do not allow pans to touch the sides of the oven; stagger them in the oven. This allows free air circulation so products will bake evenly.

C. To be efficient, the first step in preparation of batter or dough products is to assemble materials.
   1. Assemble all equipment and ingredients using a cart or trays. In this way steps are saved and you will know if all ingredients are on hand.
   2. Prepare baking pans as directed. Pans should be prepared before the product is mixed. The shorter the time between mixing and baking, the better the quality.
   3. Turn on the oven, setting the regulator at the specified temperature. If the oven is set and turned on as part of the "getting ready," it will be the correct temperature when the mixing is completed.
   4. Have ingredients at room temperature. Shortening at room temperature is easy to handle, blends well, and gives better texture and volume that cold shortening. Egg whites give maximum volume at room temperature.
   5. Use good quality ingredients. Good quality products cannot be made from poor quality ingredients.

D. Baking.
   1. Measure or weigh the mixture as it is put into pans; spread evenly so you will obtain uniform size and baking.
   2. Remove from the oven when done. When done, the structure of a baked product has set and will not collapse when touched lightly.
# Common Difficulties Encountered in Making Cookies

<table>
<thead>
<tr>
<th>Difficulty</th>
<th>Cause</th>
<th>Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cookies are too stiff.</td>
<td>Too much flour.</td>
<td>Be sure dough is of right consistency. Do not take up extra flour in rolling. Roll paper-thin for crisp cookies; ¾ inch for soft cookies. Measure ingredients carefully.</td>
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<tr>
<td>Cookies are too hard.</td>
<td>Too much flour.</td>
<td>Use correct proportions for type cookie. Chill before rolling. Watch baking time, and test when minimum time has been reached.</td>
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<tr>
<td></td>
<td>Overbaked.</td>
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<tr>
<td>Cookies are too soft.</td>
<td>Too much liquid.</td>
<td>See that the consistency is correct for type of cookie.</td>
</tr>
<tr>
<td></td>
<td>Too much sugar.</td>
<td>Observe proportions given in recipes. Too much sugar melts and increases the proportion of liquid.</td>
</tr>
<tr>
<td></td>
<td>Too much fat.</td>
<td></td>
</tr>
<tr>
<td>Cookie dough crumbles.</td>
<td>The fat required makes a rich dough short and may crumble when rolling.</td>
<td>Work in a few drops of liquid. Dough may be too cold.</td>
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<td></td>
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<tr>
<td>Cookies spread in pan.</td>
<td>High percentage of sugar; Be sure sugar is right proportion. cookies contain little moisture; sugar melts and cookies spread.</td>
<td>Grease pan lightly unless otherwise stated in recipe. There is too much shortening, liquid, soda, or ingredients accurately. baking powder.</td>
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</table>
**SCORE CARD B - COOKIES**

**DROP COOKIE**

Appearance: A fairly uniform mound shape
Color: A delicately browned exterior
Texture: An interesting or novelty texture
Flavor: Good flavor

Perfect 4 □ Good 3 □ Fair 2 □ Poor 1 □ SCORE

Poor Characteristics: Here’s Why:
Irregular size and shape
Improper dropping of dough
Dark, crusty edges
Overbaking; baking sheet too large for oven
Too dry, hard
Overbaking
Doughy
Underbaking
Excessive spreading
Dough too warm; dropping on hot baking sheet; incorrect oven temperature; not peaked when dropped

**ROLLIED COOKIE**

Appearance: Retains shape of cutter
Color: Lightly browned surface
Texture: Crisp thin cookie or soft thick cookie (depending on variety)
Flavor: Rich, delicate flavor

Perfect 4 □ Good 3 □ Fair 2 □ Poor 1 □ SCORE

Poor Characteristics: Here’s Why:
Irregular shape
Improper use of cookie press; dough in press either too cold or too warm; placing dough on hot baking sheet; too low an oven temperature

**BAR COOKIE**

Appearance: A uniform well-cut shape
Texture: A rich, moist eating quality
Tenderness: A thin delicate crust
Flavor: An appealing flavor

Perfect 4 □ Good 3 □ Fair 2 □ Poor 1 □ SCORE

Poor Characteristics: Here’s Why:
Dry, crumbly
Overbaking
Hard, crusty top
Overmixing
Crumbles when cut
Cutting bars while too warm

**MOLDED COOKIE**

Appearance: Uniform, well-shaped
Color: Delicately browned
Texture: Crisp and tender
Flavor: Pleasing, well blended

Perfect 4 □ Good 3 □ Fair 2 □ Poor 1 □ SCORE

Poor Characteristics: Here’s Why:
Misshaped cookie
Overbaking
Too brown
Crumbly
Insufficient shaping

**REFRIGERATOR COOKIE**

Appearance: Uniform, thin slices
Color: Lightly browned surface
Texture: Crisp and crunchy texture
Flavor: Rich and flavorful

Perfect 4 □ Good 3 □ Fair 2 □ Poor 1 □ SCORE

Poor Characteristics: Here’s Why:
Irregular shape
Improper molding of dough roll; dough not chilled enough when sliced; thin, sharp knife not used for slicing
Too brown
Overbaking
Soft
Cut too thick

**PRESSED COOKIE**

Appearance: Well shaped and well-defined pattern of cookie. Interesting assortment of sizes and shapes
Color: Delicately browned edges
Texture: Very tender and crisp
Flavor: Rich and buttery flavor

Perfect 4 □ Good 3 □ Fair 2 □ Poor 1 □ SCORE

Poor Characteristics: Here’s Why:
Misshaped cookie
Improper use of cookie press; dough in press either too cold or too warm; placing dough on hot baking sheet; too low an oven temperature

**Here’s Why:**
- Excessive rerolling
- Using too much flour when rolling dough
- Rolling in too much flour or rerolling

**Score Range:**
- Perfect 4
- Good 3
- Fair 2
- Poor 1
<table>
<thead>
<tr>
<th>DEFECTS</th>
<th>CAUSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Spread</td>
<td>Too fine a granulation of sugar</td>
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<tr>
<td></td>
<td>Adding all of sugar at one time</td>
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<td></td>
<td>Excessive mixing, causing toughening of the flour structure or breaking down of sugar crystals or combination of both</td>
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<td></td>
<td>Not enough baking soda</td>
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<td>Oven too hot</td>
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<tr>
<td>Excess Spread</td>
<td>Excessive sugar</td>
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<tr>
<td></td>
<td>Too soft a batter consistency</td>
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<td></td>
<td>Excessive pan grease</td>
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<td></td>
<td>Too low an oven temperature</td>
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<td></td>
<td>Excessive or improper type shortening</td>
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<td></td>
<td>Too much soda</td>
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<tr>
<td>Fall during baking</td>
<td>Excess baking powder or soda</td>
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<tr>
<td></td>
<td>Too soft a batter</td>
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<tr>
<td></td>
<td>Wrong flour</td>
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<tr>
<td></td>
<td>Improper size</td>
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<tr>
<td>Tough Cookies</td>
<td>Insufficient shortening</td>
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<tr>
<td></td>
<td>Overmixing batter</td>
</tr>
<tr>
<td></td>
<td>Too much flour</td>
</tr>
<tr>
<td>Sticks to Pans</td>
<td>Too soft flour</td>
</tr>
<tr>
<td></td>
<td>Excessive eggs</td>
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<tr>
<td></td>
<td>Too much sugar</td>
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<tr>
<td></td>
<td>Sugar spots</td>
</tr>
<tr>
<td></td>
<td>Unclean pans</td>
</tr>
<tr>
<td>Lack of Flavor</td>
<td>Pan unclean</td>
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<tr>
<td></td>
<td>Overbaking</td>
</tr>
<tr>
<td></td>
<td>Too much soda (dull dark color)</td>
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<tr>
<td></td>
<td>Cooling too quickly</td>
</tr>
<tr>
<td></td>
<td>Improper storage</td>
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</tbody>
</table>

ACROSS:
1. This is a German Christmas Cookie.
4. This is the usual method of mixing cookie dough.
9. A tool used to remove baked cookies from the sheet is a ______.
10. Food coloring can be used as a ______ on baked cookies.
11. A cookie sheet should have this type of surface.
14. For most types of cookies, the sheet should be ______.
15. The most popular type of bar cookies is ______.
17. The liquid often used in cookie dough is ______.
19. The classification of cookies pushed from a spoon onto a cookie sheet is ______ cookies.
21. Molded cookies are often made into this shape.
22. This is necessary to prevent cookies from running together during baking.
25. A solution of flavor oils in alcohol is ______.
26. The abbreviation for road is ______.
27. _______ is a sweet substance made by bees.
30. A utensil used to drop cookie dough onto a cookie sheet is a ______.
33. The vegetable fat similar to butter is ______.
35. This is the consistency of many cookie doughs.
37. These are thin, crisp cookies: ginger______.
39. Most people like cookies because they ______ so good.
40. An example of a very thin, crisp cookie is vanilla ______.
41. This dried fruit often is added to cookie dough.
43. This type of cookie contains no fat.
44. This unrefined sugar often is used as an ingredient in cookie dough.
45. Most cookies are ______ high in protein.
46. This dark sweet syrup is obtained from sugar cane; it is also the name of a cookie.
47. Slices of this fruit may be placed in a cookie jar to keep cookies soft.
49. When making this type of cookie, the dough is forced through a cookie press.
50. This classification of cookie must be chilled before baking.

DOWN:
1. One variety of cookie that originated in Sweden is ______.
2. To shape molded cookies, you use your ______.
3. A Swedish almond-flavored cookie is called a ______ tart.
4. Most cookies are high in ______.
5. This is a common flavoring extract.
6. These provide crunch in many cookies.
7. This metal may be made into cookie sheets.
8. A German honey Christmas cookie is ______.
12. To combine ingredients in a recipe is to ______.
13. The ingredient that provides structure to cookie dough is ______.
15. This flavorful type of fat often is used in cookies.
16. This type of cookies are rolled out and cut into shapes.
17. Only cool cookie sheets should be used so the fat in the dough does not ______ and cause the cookies to spread and run together.
18. This is one type of container in which to store cookies.
20. Cookies are often served at ______.
23. It is traditional to bake cookies for this holiday.
28. To add a chocolate flavor, you use cocoa ______ baking chocolate.
29. The abbreviation for year is ______.
31. A green vegetable which grows in pods is ______.
32. In this type of cookie, stiff dough is shaped with your fingers.
34. Finnish cakes are called finska ______.
36. You should allow 5 centimeters (______ inches) between drop cookies.
38. A rolling ______ is used when making rolled cookies.
42. This is a common shape for cutting Christmas sugar cookies.
44. This type of cookie is made from a soft dough baked in a pan with sides.
48. A nickname for mother is ______.
How to Clean Range Ovens

<table>
<thead>
<tr>
<th>When</th>
<th>How</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>1. Allow oven to cool</td>
<td>Long handled metal scraper</td>
</tr>
<tr>
<td></td>
<td>2. Remove shelf</td>
<td>Long handled brush</td>
</tr>
<tr>
<td></td>
<td>3. Scrape burned particles from hearth</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Brush out interior, shelf ledges, and door crevice</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Replace shelf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Wash outside of door and frame</td>
<td>Cleaning hot water, clean dry cloth</td>
</tr>
<tr>
<td></td>
<td>7. Rinse and wipe dry</td>
<td></td>
</tr>
<tr>
<td>Weekly</td>
<td>1. Allow oven to cool</td>
<td>Hot machine detergent solution, gong brush</td>
</tr>
<tr>
<td></td>
<td>2. Remove shelf, take to pot and-pan sink, and scrub</td>
<td>Metal sponge</td>
</tr>
<tr>
<td></td>
<td>3. Rinse and wipe dry</td>
<td>Clean hot water</td>
</tr>
<tr>
<td></td>
<td>4. Scrape burned-on particles from hearth</td>
<td>Long handled metal scraper</td>
</tr>
<tr>
<td></td>
<td>5. Brush interior, shelf ledges and door crevice</td>
<td>Dust pan</td>
</tr>
<tr>
<td></td>
<td>6. Scrub interior, shelf ledges inside and outside of door, and frame</td>
<td>Hot machine detergent solution, long handled brush</td>
</tr>
<tr>
<td></td>
<td>7. Rinse inside and outside of oven</td>
<td>Clean hot water, clean damp cloth</td>
</tr>
<tr>
<td></td>
<td>8. Replace clean shelf</td>
<td>Clean dry cloth</td>
</tr>
<tr>
<td></td>
<td>9. Wipe outside dry and polish metal trim</td>
<td>Metal polish</td>
</tr>
</tbody>
</table>

How to Clean Food Mixer

<table>
<thead>
<tr>
<th>When</th>
<th>How</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>After each use</td>
<td>1. Turn off machine</td>
<td>Hot machine detergent solution, short handled gong brush</td>
</tr>
<tr>
<td></td>
<td>2. Remove bowl and beaters, take to pot-and-pan sink for cleaning</td>
<td>Clean hot running water 170 - 180 F</td>
</tr>
<tr>
<td></td>
<td>3. Rinse, keep immersed for 1 minute, air dry</td>
<td>Clean dry cloth wrung out in clean hot water</td>
</tr>
<tr>
<td>Daily</td>
<td>4. Scrub machine</td>
<td>Clean damp cloth wrung out in clean hot water</td>
</tr>
<tr>
<td></td>
<td>(a) Beater shaft</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) Bowl saddle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(c) Shell and base</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Rinse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Dry</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Oil as per directions if required</td>
<td>Machine Oil</td>
</tr>
</tbody>
</table>
Lesson 5: Cakes

Module 5--Desserts: The Happy Ending

I. Instructor preparation for class activities

A. Have available the following ingredients:
   - Cake mixes (2 boxes, 5# each--chocolate, plain)
   - Cocoa
   - Vanilla
   - Flour
   - Eggs
   - Shortening
   - Sugar
   - Baking Powder and Soda
   - Buttermilk
   - Milk
   - Powdered Sugar
   - Fruit for cobbler cake
   - Salt

B. Assemble the following equipment:
   - Mixer
   - 2" cake pans and cupcake pans
   - Measuring cups and spoons
   - Scale and spatulas
   - Oven
   - Knives to cut cakes
   - Plates for sampling
   - Forks for sampling

C. Duplicate sufficient copies of these handouts:
   1. Cake Variations
   2. Baking Butter Cakes
   3. Cobbler Cake
   4. Characteristics of High Quality Cakes
   5. Scorecard for Shortened Cakes
   6. Poor Characteristics of Butter Cakes and Why
   7. Various Ways to Cut Cakes
   8. Freezing and Thawing Baked Products
### Lesson Content

#### I. Types of cakes
- A. Butter cake; Layer, sheet and loaf
- B. Chiffon; has characteristics of butter cake and angel food
- C. Angel food
- D. Sponge
- E. Upside down

#### II. Variations of plain cakes, spice cakes and chocolate cake—Handout #1

#### III. Methods of preparation for butter cakes
- **A. Conventional Method**
  Fat and sugar are creamed 10 minutes, then eggs are added and mixed 5 minutes. Dry ingredients are added alternately with milk, starting and ending with dry ingredients. A conventional cake batter is so thick that it does not spread by itself in pans, but must be spread with a spatula.

- **B. Modified Conventional Method**
  Similar to conventional method, except that stiffly beaten egg whites are folded in last.

- **C. Dough batter Method**
  Also called blended method in which cake flour, baking powder and fat are creamed; sugar and ½ milk are then added, and lastly, in about three parts; the eggs and remaining milk and flavoring. This method was designed for quantity equipment.

- **D. Muffin Method**
  A quick method. Blend all liquid ingredients including oil or liquified shortening into the dry ingredients. This cake does not keep well.

### Class Activity and Evaluation

- Discuss examples of types of cake, examining methods and recipes in *Food For Fifty* beginning on P. 157.

- Students add to list of variations during discussion.

- See table 1.22—Temperatures and Times Used in Baking—*Food for Fifty* page 72.

- See Banana cake—*Food for Fifty* p. 167.

- See German Sweet Chocolate Cake, p. 170 and Pineapple Cashew Cake, p. 171.

- See white cake—*Food for Fifty*, p. 166 and plain cake, 164.
FOOD SERVICE EMPLOYEES SHORT COURSES
Lesson 5: Cakes
Module 5--Desserts: The Happy Ending

LESSON CONTENT

IV. Ingredients

A. Pastry and cake flours have much less gluten than bread flour, and are made from soft wheat. 1 pound cornstarch added to 10 pounds all-purpose flour may be used as a substitute for cake flour.

B. Fat--helps incorporate air when sugar is creamed in. Makes product tender, adds richness, and texture.

C. Sugar adds sweetness and also tenderizes, gives color, texture, and moistness. Also used for frostings.

D. Milk--aids in browning, adds nutrients.

E. Eggs--Add structure, tenderness, volume, nutritional value, flavor, color and moisture.

F. Leavening--Sulphate-phosphate baking powder (double acting) requires heat for full carbon dioxide production. Other agents are steam and baking soda.

V. Baking Butter Cakes--Handout #2

VI. Preparation of Cakes

Scaling:
- 12-14 oz. in 8" layers
- 6-7 lbs. in 1" x 18" x 26" bun pan
- in 12" x 20" pan

VII. Cake Mixes

A. List ways to improve cakes made from cake mixes
B. Discuss master cake mix recipe--Food for 50, p. 162-163

VIII. Cobbler cakes--See cobbler cake Basic Directions and Variations--Handout #3

Note: Throughout this lesson, instructor may wish to decrease amount of sugar by 25% and to experiment with using part whole-wheat flour in some recipes.

Discuss Handout #2

Assign groups to prepare:
- Fudge cake--p. 169--(Conventional Method) Make 2-2 layer cakes and 20 cupcakes
- Plain cake--p. 164. (Dough-batter or blended method) (Optional--make part of it spice cake and part marble cake)
- Chocolate cake using recipe on cake mix box

Prepare one of the variations of cobbler cake with sauce.
Lesson 5: Cakes

Module 5--Desserts: The Happy Ending

<table>
<thead>
<tr>
<th>LESSON CONTENT</th>
<th>CLASS ACTIVITY AND EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>IX. Frostings:</td>
<td>Prepare creamy icing page 180 and use to ice the fudge cakes.</td>
</tr>
<tr>
<td>A. Types</td>
<td>Chocolate Butter cream page 180--use to ice plain cake and chocolate cake made from mix.</td>
</tr>
<tr>
<td>1. Boiled</td>
<td>Handout #4</td>
</tr>
<tr>
<td>2. Creamy</td>
<td>Handout #5--Betty Crocker Score card for Cakes With Shortening.</td>
</tr>
<tr>
<td>3. Glaze</td>
<td>See Handout #7--Various Ways to Cut Cakes</td>
</tr>
<tr>
<td>4. Ornamented</td>
<td>Handout #8--Freezing and Thawing Baked Products</td>
</tr>
<tr>
<td>X. Discuss characteristics of high quality butter cakes--Handout #4</td>
<td></td>
</tr>
<tr>
<td>XI. Evaluate cakes and cobbler cake using scorecard for shortened cakes--Handout #6--Poor Characteristics and Here's Why</td>
<td></td>
</tr>
<tr>
<td>XII. Demonstrate methods of cutting cake</td>
<td></td>
</tr>
<tr>
<td>A. Different sizes and shapes</td>
<td></td>
</tr>
<tr>
<td>B. Calculate number of servings using each method</td>
<td></td>
</tr>
<tr>
<td>XIII. Calculate cost per serving</td>
<td></td>
</tr>
<tr>
<td>Compare cost and quality of cake made from scratch versus cake made from mix. Discuss.</td>
<td></td>
</tr>
<tr>
<td>XIV. Discuss freezing of baked product</td>
<td></td>
</tr>
</tbody>
</table>
CAKE VARIATIONS

Some Variations of Plain Cakes

Banana
Lazy Daisy
Caramel
Cherry
Lemon
Chocolate Chip
Gumdrops
Peanut Butter
Lady Baltimore
Maple Flavored
Peppermint

See also pages 164-165, Food for Fifty

Some Variations of Spice Cakes

Applesauce
Apple Butter
Raw Apple Spice
Chocolate Spice
Date or Raisin Spice
Prune Spice

Some Variations of Chocolate Cake

Banana Chocolate
Coconut Chocolate
Cinnamon Chocolate
Rocky Road Chocolate
German Chocolate
BAKING BUTTER CAKES

A. Pans:
To make cakes successfully the pan must be the right size for
the batter. A pan of proper depth supports a cake while rising
and protects it while baking. Use shiny metal pans. Evenly
grease the pans with solid shortening, not butter, margarine or
oil, and lightly flour. To ensure a tender cake, push the
batter gently from the mixing bowl into the pans. Spread the
batter evenly from the center to the sides. Pans should be
between 1/2 to 2/3 full.

B. Oven:
Oven must be preheated. Arrange cake pans alternately on the
oven rack so that there is a space around each pan and a dis-
tance of approximately two inches from the sides of the oven.

Opening oven doors during the baking process is likely to lessen
the volume of the cake and prevent even browning.

C. Doneness:
When done, all cakes should be delicately brown and shrink slightly
from the sides of the pan. As further tests, the cake should
spring back when it is touched lightly, and a toothpick or metal
cake tester inserted in the center should be free from crumb particles
when removed.

Overbaking destroys flavor and shrinks a cake. The finished product
should be light with a fine texture, have a slightly rounded top, a
tender grain, and a sweet well-flavored taste.

D. Cooling:
The cake should cool 10 minutes with the pan placed on a wire
rack. To transfer cake to rack, loosen the edges with a spatula,
place the rack over the pan, and invert.
Cobbler Cake. Basic Directions

5 lb. box cake mix
1-2 lbs. fruit
3 lbs. (6 cups) water

1. Spread half dry cake mix over bottom of 18" x 12" x 2" steam table pan.
2. Sprinkle 2 cups water evenly over dry mix.
3. Cover with desired fruit.
4. Spread balance of dry cake mix over fruit.
5. Sprinkle the remaining four cups of water evenly over the dry mix.
6. Allow to set 5-10 minutes and place in 350°F oven.
7. Bake for approximately one hour or until center is set.

Yields 50 servings. Serve warm or cold.

*Drain juice from canned fruits. Juice can be used for sauce for this "cake-dessert."

Basic Ingredients for Cobbler Cake Sauce

2 lbs. (1 qt.) water and/or fruit juice
1 lb. granulated sugar
Juice and rind of 1 lemon
1 1/2 ozs. Cornstarch
Coloring if desired

Variations of Cobbler Cake Sauce

Lemon Sauce: Add juice and rind of 2 lemons
Orange Sauce: Add juice and rind of 2 oranges
Chocolate Flavored Sauce: Add 2 ozs. of cocoa with the sugar
Strawberry Sauce: Add 1 cup strawberries and a few drops of red coloring
Cherry Sauce: Add 1 cup canned cherries and use cherry juice for part of liquid
Caramel Sauce: Use brown sugar instead of granulated; add vanilla extract in place of the lemon
Maraschino Cherry Sauce: Use maraschino juice for part of liquid and add a drop of almond extract
SCORECARD FOR SHORTENED CAKES

Select the appropriate words to describe the product. Use a scale from 1 to 5, 5 being high, 1 being low.

<table>
<thead>
<tr>
<th>Cake</th>
<th>Form</th>
<th>Method</th>
<th>General Appearance: size and shape</th>
<th>Texture and Tenderness of crumb</th>
<th>Flavor and Mouth Feel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fudge</td>
<td>2-layer</td>
<td>Conventional</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fudge</td>
<td>cupcakes</td>
<td>Conventional</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plain</td>
<td>Sheet</td>
<td>Dough-batter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chocolate</td>
<td>12 x 20 pan</td>
<td>Cake mix</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cobbler cake</td>
<td>12 x 20</td>
<td>Cake mix</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creamy icing</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Butter cream</td>
<td></td>
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</tr>
</tbody>
</table>

Characteristics of High Quality Butter Type Cakes

Appearance: Top crust should be lightly rounded toward the center of the layer; top crust should be pale, golden brown. Color should be characteristic of kind of cake and uniform throughout.

Texture: Uniform distribution of small gas holes; cell walls should be quite thin.

Tenderness: Crumb should be so tender as to "melt in the mouth" when bitten; there should be practically no resistance when bitten.

Mouth Feel: Crumb should feel "velvety" or extremely smooth as it comes into contact with the palate and the back of the mouth; crumb should be slightly moist, crumbly, sticky or doughy.

Flavor: Mild sweet flavor will predominate; if butter is used, butter flavor may be apparent.
<table>
<thead>
<tr>
<th>Poor Characteristics of Butter Cakes</th>
<th>Here's Why</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peaked or cracked</td>
<td>Too much flour; too hot oven.</td>
</tr>
<tr>
<td>Pale color</td>
<td>Too little sugar; wrong type pan, underbaked.</td>
</tr>
<tr>
<td>Too dark brown</td>
<td>Too much sugar; too hot oven; overbaked.</td>
</tr>
<tr>
<td>Low volume</td>
<td>Too much shortening; too much liquid; too low oven; wrong-sized pan.</td>
</tr>
<tr>
<td>Sunken</td>
<td>Too little liquid; too much sugar or shortening or leavening; underbaked.</td>
</tr>
<tr>
<td>Large uneven cells, thick cell walls</td>
<td>Too little liquid; insufficient mixing; too much shortening; too cool oven.</td>
</tr>
<tr>
<td>Compact texture</td>
<td>Overbeating.</td>
</tr>
<tr>
<td>Crumble when cut</td>
<td>Too much shortening; too much sugar; insufficient mixing.</td>
</tr>
<tr>
<td>Tunnels</td>
<td>Too much egg; too little sugar; poor mixing; too hot oven.</td>
</tr>
<tr>
<td>Dry</td>
<td>Too little sugar; too much leavening; too long baking.</td>
</tr>
<tr>
<td>Soggy</td>
<td>Underbaking; too much shortening; undermixing.</td>
</tr>
<tr>
<td>Solid</td>
<td>Too much liquid; too much shortening; too much flour.</td>
</tr>
<tr>
<td>Tough</td>
<td>Overmixing; overbaking; too little shortening.</td>
</tr>
<tr>
<td>Dull color</td>
<td>Poor ingredients; improper mixing of ingredients.</td>
</tr>
<tr>
<td>Flat</td>
<td>Too little salt.</td>
</tr>
<tr>
<td>Unpleasant flavor; bitter</td>
<td>Strong or rancid shortening; poor quality eggs or flavoring.</td>
</tr>
</tbody>
</table>
VARIOUS WAYS TO CUT CAKES

1 pound loaf cake
Yield: 8 servings

1 pound loaf cake
Yield: 8 servings

1 pound loaf cake
Yield: 8 servings

8" — 2 layer cake
Yield: 12 servings

9" — 2 layer cake
Yield: 16 servings

8" x 8"
Yield: 9 servings

8" x 8"
Yield: 10 servings

9" x 9"
Yield: 16 servings

9" x 9"
Yield: 12 servings

9" x 12"
Yield: 30 servings

18" x 25"
Yield: 48 servings

18" x 25"
Yield: 48 servings

(Courtesy American Baking Institute)
FREEZING AND THAWING BAKED PRODUCTS IN HOME FREEZERS

- Breads, cakes and cookies may be baked and frozen in the home, but to do it successfully care must be taken to follow recommended procedures.

- Commercially baked products are frozen more rapidly than those in home freezers. Air blast cooling as low as 50°F. is used by industry. Home freezers are not as efficient, therefore products tend to dry out more readily.

- A general rule for the length of time baked products are held in home freezers is "The Shorter the Storage Time, the Better the Quality of Product."

- Baked products do not improve with storage. They will never be of better quality than on baking day.

Freezing

- Wrapping or packaging baked products in moisture vapor proof papers or plastic bags is important. Press out as much air as possible before sealing package.

Breads

Cool. Wrap in foil, freezer paper or place in plastic bags. Label.

Cakes (Unfrosted)

Cool or chill cake to firm it. Place cake on foil covered cardboard. A collar of cardboard or stiff paper can encircle the cake. It should be a bit wider and deeper than the cake to prevent wrapping from touching crust. If cake is to be carried from the home later it may be wise to place wrapped cake in a box after it has been frozen.

Cakes (Frosted)

Powdered Sugar Frosting - which contains butter, margarine or other plastic fat is a frosting recommended for freezing.

Powdered Sugar Frosting Recipe

1 pound box powdered sugar, sifted
1/4 cup cream, milk or fruit juice
flavoring as desired
Heat liquid and fat until steaming. Add flavoring. If desired cook over hot water for a few minutes to remove the uncooked taste.

Note: This should be enough frosting to cover 1-9" x 13" loaf cake or two 8" or 9" layers.

Seven Minute Frosting or other foamy types are not satisfactory because they become dry and brittle.

A frosted cake can be placed for about 30 minutes in the freezer to harden before packaging it. After it is frozen place it and the cardboard base into a plastic bag or cake box wrapped for freezer storage.

Thawing

- Thaw all baked products in their original unopened package at room temperature. This prevents moisture from the air condensing on the surface. This moisture will cause crust to become soggy or sticky.
Volume: The amount of a baked product produced from a specific amount of batter. Volume will be small (poor), average (good), large (excellent).

Appearance: The shape, condition of the top crust, and the color of the exterior surface (may at times include the color of interior crumb).
- Shape: Symmetrical, unsymmetrical.
- Condition of top crust: Level, sunken, rounded, erupted (volcano-like), pebbled, sticky, greasy, dry.
- Exterior color: Pale, practically no browning, golden brown, light brown, dark brown, black (burned).
- Interior color: May be affected by ingredients used, especially where egg is an ingredient.

*Texture: The size of the air cell and thickness of the cell wall constitute the “grain” of the baked product. A product is heavy, compact, or light by characteristics of cell wall and air cell.
- Air cell: Small, medium, large.
- Cell wall: Thin, medium, thick.
- Flakiness: The layering or development of “flakes” in the crumb of certain pastries.
- Meatiness: Lack of flakiness; pastry is crumbly.

Velvetiness: Smoothness of crumb as it comes between palate and the back of the tongue. Lacking velvetiness, the crumb may be harsh and rough.

Moistness: The degree of moisture within the crumb. The crumb may be wet, soggy, gummy, pleasingly moist, dry.

Tenderness: The ease with which a product may be cut, broken, or chewed. Products may vary from very tough to extremely tender. Pastries may be designated as brittle and hard.

Flavor: Should be characteristic of product. Aroma becomes part of flavor as product is eaten. A partial list of terms to describe flavor may include: sweet, bitter, soapy, nutlike, floury, flat, rancid fat, wheat-like, eggy, yeasty, bland, sour.

*Note: Many authors describe texture attributes of baked products in terms of “grain”; for example, a pound cake has a close grain.
Lesson 6: Dessert Specialties

Module 5—Desserts: The Happy Ending

I. Instructor preparation for class activities

A. Assemble the following equipment:
   - Pastry blender
   - Mixing bowls
   - Mixes
   - Measuring spoons and cups
   - Scale
   - 2 cake pans 12 x 20 x 2
   - 4 sheet pans
   - Oven
   - Dippers, #24 and #10
   - Pastry bag
   - Pastry tube large tip
   - 5 pie pans
   - Plates

B. Have available the following ingredients:
   - Eggs
   - Salt
   - Cream of tartar
   - Sugar
   - Butter
   - Flour
   - Apples
   - Cake or bread crumbs
   - Brown sugar
   - Cinnamon
   - Nutmeg
   - Lemon juice
   - Rolled oats uncooked
   - Instant pudding prepared

C. Duplicate sufficient copies of these handouts:
   1. Stages of Fresh Egg White Foam Formation
   2. Score Card for Desserts Short Course Evaluation
Lesson 6: Dessert Specialties  Module 5--Desserts: The Happy Ending

LESSON CONTENT

Introduction

Review of first 5 lessons

Review glossary

<table>
<thead>
<tr>
<th>Gluten</th>
<th>Baking powder</th>
<th>Meringue (hard)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bread flour</td>
<td>Butter cake</td>
<td>Crisp</td>
</tr>
<tr>
<td>Hard-wheat flour</td>
<td>Creaming method</td>
<td>Shortcake</td>
</tr>
<tr>
<td>Soft flour</td>
<td>Blending method</td>
<td>Betty</td>
</tr>
<tr>
<td>Cake flour</td>
<td>Muffin Method</td>
<td>Cobbler</td>
</tr>
<tr>
<td>Pastry flour</td>
<td>Conventional sponge</td>
<td>Tartlets</td>
</tr>
<tr>
<td>Shortening</td>
<td>method</td>
<td>Mealy</td>
</tr>
<tr>
<td>Leavening</td>
<td>Panning</td>
<td>Flakiness</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>Scaling</td>
<td>Stretching</td>
</tr>
<tr>
<td>Single-acting</td>
<td>Spread</td>
<td>Blistering</td>
</tr>
<tr>
<td>Double-acting</td>
<td>Meringue (soft)</td>
<td>Single crust</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Double crust</td>
</tr>
</tbody>
</table>

CLASS ACTIVITY AND EVALUATION

Discussion of how students have used information and skills used in this module.

I. Some dessert specialties are:

A. A crisp is a fruit mixture topped with a blend of flour, sugar, fat and seasoning and then baked. Oatmeal may be used for all or part of the flour to give a crispier and more nutty flavored top.

B. Bettys are layers of fruit alternated with bread or cake crumbs, sugar and butter or margarine and then baked.

C. Cobblers are fruit with a baked biscuit or pie dough on top. Dumplings consist of fruit wrapped with pastry and baked with a spiced sugar syrup.

D. Cream puffs and Eclairs are made from a cooked starch paste of flour, water and butter, with eggs beaten into the cooked mixture, which is then shaped and baked. They are leavened with steam.

Discuss recipe and variations of fruit crisps. See apple crisp, Food for Fifty, page 381.

Discuss recipe and variations of Brown Betty, Food for Fifty, page 380.

See recipe for apple dumplings, Food for Fifty, page 377.

Discuss recipe and variations of cream puffs and eclairs; see cream puffs, Food for Fifty, page 386.
LESSON CONTENT

**E. Meringue shells** are blends of whipped egg white foam and sugar. Pies are topped with soft meringues; hard meringues are the base for meringue shells, which are filled with whipped cream, fruit, or are used as the base for angel pie.

Hard meringues have a larger proportion of sugar and are baked longer than soft meringues. See Handout #1

**II. Adjusting recipes**

To maintain control of quantities prepared and avoid waste, recipes should carefully be adjusted to the quantity needed.

Review principles of weighing and measuring.

**III. Preparation of fruit crisps, Betty’s, cream puffs and meringue shells**

A. Demonstrate use of pastry bag and tube for shaping cream puffs, éclairs and meringue shells.

B. Stress using principles of motion economy in portioning cream puffs and meringue shells.

**IV. Portion control**

Discuss size of portion appropriate for the clientele.


If possible, determine cost per serving.

CLASS ACTIVITY AND EVALUATION

Discuss recipe and variations of meringue shells. See meringue shells, *Food for Fifty*, page 389.

Discuss Handout #1--Stages of Fresh Egg White Foam Formation

Assign recipes to be prepared to students. Instructor will determine quantity to be prepared. Students will use direct reading table in *Food for Fifty* to adjust quantity.

See *Food for Fifty*, page 27--Table 13--Weights, Measures and Their Abbreviations.

Note: Instructor may wish to add sponge cake, angel food cake and apple dumplings to this lesson as a supplement to principles learned with meringue and pastry lessons.

Demonstrate cutting 12 x 20 pan 6 x 8 for 2 x 2½ inch portions.
# Lesson 6: Dessert Specialties

## Module 5—Desserts: The Happy Ending

### Lesson Content

#### VI. Evaluation of finished products
Discuss characteristics of high quality products.

#### VII. Storage of desserts

<table>
<thead>
<tr>
<th>Type</th>
<th>Storage Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Cresp and Bettys</td>
<td>Covered and refrigerated</td>
</tr>
<tr>
<td>B. Cream puffs</td>
<td>Room temperature, and dry until filled. After filling put in refrigerator.</td>
</tr>
<tr>
<td>C. Meringue shells</td>
<td>Store at room temperature, dry and fill just before serving.</td>
</tr>
</tbody>
</table>

#### VIII. Evaluation of this module

### Class Activity and Evaluation

- **Handout #2—Score Card for Desserts**: Using evaluation form, students will evaluate this module.
<table>
<thead>
<tr>
<th>INGREDIENTS</th>
<th>AMOUNT</th>
<th>METHOD</th>
</tr>
</thead>
</table>

---

**RECIPE:**

**TIME:**

**TEMPERATURE:**

**NUMBER OF PORTIONS:**

**SIZE OF PORTION:**
STAGES OF FRESH EGG WHITE FOAM FORMATION

1. Foamy:
   a. Bubbles form on the surface, but not all of the white is broken up.
   b. Foam is extremely unstable.
   c. Air cells are variable in size but are generally quite large.
   d. Mixture is still fluid.
   e. Mixture starts to become opalescent.

   Acid, salt, and vanilla are added at this stage.

2. Soft Peaks:
   a. Air cells are medium fine; all of the white exists as foam.
   b. Foam is fairly stable; slight drainage upon short standing.
   c. Mixture is shiny; flows readily in bowl.
   d. Mass is elastic.
   e. Soft peaks fall-over to near the base of the foam as beater is lifted from foam.

   Sugar is added gradually but quickly (not in one large amount) at this stage.

3. Stiff Peaks:
   a. Air cells are fine, especially if acid has been added at the foamy stage; mixture is very white and opaque.
   b. Foam is quite stable (even of plain egg whites); some drainage will occur with prolonged standing.
   c. Mixture is shiny; flows slowly in bowl.
   d. Mass is still elastic.
   e. Peaks are still quite soft, but only the tip of the peak falls over as the beater is pulled from the foam.

   Egg whites for souffles and omelets are beaten to this stage.
   Egg whites and sugar are beaten to this stage for angel cakes and pie meringues.

4. Dry:
   a. Air cells are very fine; mixture is extremely white.
   b. Foam is not stable; drainage occurs rapidly on standing.
   c. Mixture is dull; it has lost its ability to flow in the bowl.
   d. Mass is brittle and inelastic; peaks remain in rigid points.

   This stage is generally to be avoided for products using fresh egg whites.
   Reconstituted, dehydrated egg whites must be beaten to this stage for all products.
SCORE CARD FOR DESSERTS

Select and record words that best describe the products. Evaluate against characteristics of a high quality product using a 5 point scale--5= most desirable, 1=least desirable.

<table>
<thead>
<tr>
<th>Product</th>
<th>Appearance</th>
<th>Flavor</th>
<th>Mouth feel</th>
<th>Consistency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit crisp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown Betty</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dumplings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cream puffs or Eclairs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meringue shell</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angel food cake</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Characteristics of high quality crisps and Bettys:
- Crisps and Bettys should be evenly mixed and evenly spread in pan.
- Layers of crumbs or toppings should be even and relatively thin. Topping should be crisp, not soggy; lightly browned, not pale or pasty. Flavor should be moderately sweet, characteristic of the fruit used, not too tart and not too greasy.

Characteristics of high quality cream puff shells:
- Appearance: Top surface is irregular; top crust is golden brown; good volume
- Texture: At least one large gas hole formed in the interior of the puff
- Tenderness: Outer crust is tender, and crisp but firm, not soggy
- Moistness: Outer crust is crisp; interior membranes may be slightly moist
- Flavor: Outer crust should be bland; if butter is used, its flavor may be apparent.

Characteristics of high quality meringue shells:
- Appearance: Evenly shaped, uniform in size
- Color: Very pale and uniform, with no brown spots
- Texture: Crisp and tender with no weeping
- Flavor: Bland, somewhat sweet; not bitter
This is what I learned at this workshop:

This is how I'll use what I learned on my job:

Next Time, I hope you will: