DOCUMENT RESUME

ED 223 798 CE 034 076

TITLE	Cook, 9-5. Military Curriculum Materials for Vocational and Technical Education.
INSTITUTION	Air Force Training Command, Lowry AFB, Colo.; Ohio State Univ., Columbus. National Center for Research in Vocational Education.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
PUB DATE	78
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PUB TYPE	Guides - Classroom Use - Materials (For Learner) (051) -- Guides - Classroom Use - Guides (For Teachers) (052)
EDRS PRICE	MF01/PC12 Plus Postage.
DESCRIPTORS	Audiovisual Aids; Behavioral Objectives; *Cooking Instruction; Cooks; Educational Resources; *Food Service; *Foods Instruction; Learning Activities; Lesson Plans; Nutrition Instruction; Postsecondary Education; Secondary Education; *Teaching Methods; Test Items; Units of Study; Vocational Education
IDENTIFIERS	Military Curriculum Project

ABSTRACT

This course, which was adapted from military curriculum materials for use in vocational and technical education, provides training in both the theoretical and practical phases of cooking for students who want to become semiskilled (apprentice) cooks. The theory portion of the course is intended for the classroom, not the laboratory. The course is organized in two parts. Block 1 covers food service techniques, including the following four units: sanitation, storeroom procedures, nutrition, and meat identification. Block 2, the role of the cook, contains the following four units: equipment; cooking terms, seasoning agents, and weights and measures; principles of food preparation; and progressive cookery and waste prevention. Each unit contains criterion objectives and a brief introduction followed by information on the subject in text form. These are followed by questions that can be used either as review exercises or as test items. For the instructor, a plan of instruction is provided that contains the criterion objectives for each unit of instruction, the duration of each unit, the support materials to be used by the instructor, and the training methods to be used (primarily discussion and demonstration). The support materials include Air Force Manuals and audiovisual aids. (KC)

MILITARY CURRICULUM MATERIALS

The military-developed curriculum materials in this course package were selected by the National Center for Research in Vocational Education Military Curriculum Project for dissemination to the six regional Curriculum Coordination Centers and other instructional materials agencies. The purpose of disseminating these courses was to make curriculum materials developed by the military more accessible to vocational educators in the civilian setting.

The course materials were acquired, evaluated by project staff and practitioners in the field, and prepared for dissemination. Materials which were specific to the military were deleted, copyrighted materials were either omitted or approval for their use was obtained. These course packages contain curriculum resource materials which can be adapted to support vocational instruction and curriculum development.

The National Center Mission Statement

The National Center for Research in Vocational Education's mission is to increase the ability of diverse agencies, institutions, and organizations to solve educational problems relating to individual career planning, preparation, and progression. The National Center fulfills its mission by:

- Generating knowledge through research
- Developing educational programs and products
- Evaluating individual program needs and outcomes
- Installing educational programs and products
- Operating information systems and services
- Conducting leadership development and training programs

FOR FURTHER INFORMATION ABOUT
Military Curriculum Materials
WRITE OR CALL

Program Information Office
The National Center for Research in Vocational Education
The Ohio State University
1960 Kenny Road, Columbus, Ohio 43210
Telephone: 614/486-3655 or Toll Free 800/848-4815 within the continental U.S. (except Ohio)

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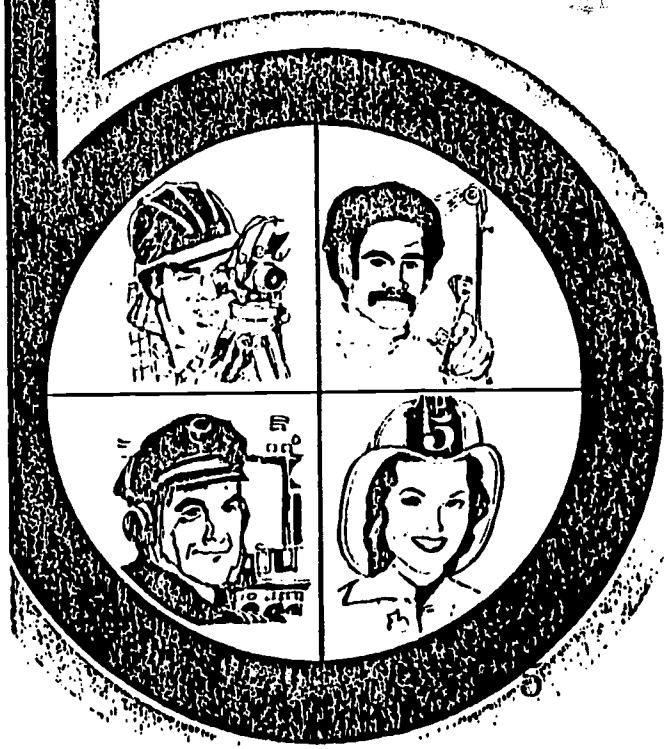
Military Curriculum Materials for Vocational and Technical Education

Information and Field Services Division

The National Center for Research in Vocational Education



Military Curriculum Materials Dissemination Is . . .

an activity to increase the accessibility of military-developed curriculum materials to vocational and technical educators.

This project, funded by the U.S. Office of Education, includes the identification and acquisition of curriculum materials in print form from the Coast Guard, Air Force, Army, Marine Corps and Navy.

Access to military curriculum materials is provided through a "Joint Memorandum of Understanding" between the U.S. Office of Education and the Department of Defense.

The acquired materials are reviewed by staff and subject matter specialists, and courses deemed applicable to vocational and technical education are selected for dissemination.

The National Center for Research in Vocational Education is the U.S. Office of Education's designated representative to acquire the materials and conduct the project activities.

Project Staff:

Wesley E. Budke, Ph.D., Director
National Center Clearinghouse

Shirley A. Chase, Ph.D.
Project Director

What Materials Are Available?

One hundred twenty courses on microfiche (thirteen in paper form) and descriptions of each have been provided to the vocational Curriculum Coordination Centers and other instructional materials agencies for dissemination.

Course materials include programmed instruction, curriculum outlines, instructor guides, student workbooks and technical manuals.

The 120 courses represent the following sixteen vocational subject areas:

- Agriculture
- Aviation
- Building & Construction Trades
- Clerical Occupations
- Communications
- Drafting
- Electronics
- Engine Mechanics
- Food Service
- Health
- Heating & Air Conditioning
- Machine Shop
- Management & Supervision
- Meteorology & Navigation
- Photography
- Public Service

The number of courses and the subject areas represented will expand as additional materials with application to vocational and technical education are identified and selected for dissemination.

How Can These Materials Be Obtained?

Contact the Curriculum Coordination Center in your region for information on obtaining materials (e.g., availability and cost). They will respond to your request directly or refer you to an instructional materials agency closer to you.

CURRICULUM COORDINATION CENTERS

EAST CENTRAL
Rebecca S. Douglass
Director
100 North First Street
Springfield, IL 62777
217/782-0759

MIDWEST
Robert Patton
Director
1515 West Sixth Ave.
Stillwater, OK 74704
405/377-2000

NORTHEAST
Joseph F. Kelly, Ph.D.
Director
225 West State Street
Trenton, NJ 08625
609/292-6562

NORTHWEST
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601/325-2510

WESTERN
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1776 University Ave.
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Developed by

United States Air Force

Development and Review Dates

July, 1974

D.O.T. No.:
313.381, 315.381

Occupational Area:
Food Service

Target Audiences:
Grades 11-14

Print Pages:
266

Cost:

Availability:
Military Curriculum Project, The Center for Vocational Education, 1960 Kenny Rd., Columbus, OH 43210

Contents:	Type of Materials: Lesson Plans:	Programmed Text:	Student Workbook: No. of pages	Handouts:	Text Materials:	Audio-Visuals:	Instructional Design: Performance Objectives:	Tests:	Review Exercises:	Additional Materials Required:	Type of Instruction: Group Instruction:	Individualized:
Block I – *Food Service Techniques*						★						
Unit 4 – Sanitation	•		11				•	•		★	•	
Unit 6 – Storeroom Procedures	•		6				•	•		★	•	
Unit 7 – Nutrition	•		11				•	•		★	•	
Unit 9 – Meat Identification	•		20				•	•		★	•	
Block II – *The Role of the Cook*						★						
Unit 2 – Equipment	•		36				•	•		★	•	
Unit 3 – Cooking Terms, Seasoning Agents, Weights and Measures	•		13				•	•		★	•	
Unit 4 – Principles of Food Preparation	•		54				•	•		★	•	
Unit 5 – Progressive Cookery and Wastage	•		6				•	•		★	•	

• Materials are recommended but not provided.

Course Description:

This course provides training in both the theory and practical phase of cooking for a student who wants to become a semiskilled (apprentice) cook. The duties of this position are:

- Cooks all meals according to recipes and the cook's worksheet.
- Is responsible for proper and timely preparation of meals.
- Cooks meats, eggs, and vegetables in addition to fish and poultry.
- Bakes quick breads, makes gravy, stews, soups, and broths.
- Prepares salads and salad dressings.
- Garnishes and places meals on serving lines or on cold trays.
- Serves meals and is responsible to the senior cook for maintaining sanitation standards during shift.

The theory portion of the course is covered by the available materials and is intended for the classroom, not the laboratory. Of the four blocks of instruction covered in this course, only the first two are general enough for vocational program use. The other two are military specific and cover dining hall operations.

Block I, Parts I and II, *Food Service Techniques*, contains ten units of instruction (60 hours). Of these, only the following three and a half units (28 hours) are applicable to the civilian sector:

Unit 4 – **Sanitation** (8 hours)
Unit 6 – **Storeroom Procedures**, first half (3 hours)
Unit 7 – **Nutrition** (6 hours)
Unit 9 – **Meat Identification** (10 hours)
Beef carcasses (6 hours)
Poultry and seafood (4 hours)

Block II, Parts I and II, *The Role of the Cook*, contains six units of instruction (72 hours). Four of these units are usable in vocational programs (52 hours)

Unit 2 – **Equipment** (12 hours).
Unit 3 – **Cooking Terms, Seasoning Agents, and Weights and Measures** (6 hours)
Unit 4 – **Principles of Food Preparation** (28 hours)
Unit 5 – **Progressive Cookery and Waste Prevention** (6 hours)

Each unit contains criterion objectives and a brief introduction followed by information on the subject in text form. These are followed by questions which can be used either as review exercises or test items.

A Plan of Instruction is provided which contains the criterion objectives for each unit of instruction, the duration of each unit, the support materials to be used by the instructor and the training methods to be used, primarily discussion/demonstration. The support materials include Air Force Manuals and audiovisual aids. Following is a list of audiovisuals suggested, but not provided, for use with this course:

TF 5920	An Outbreak of Staphylococcus Intoxication
TF 1-8104	The Rat Problem
TF 6074	Air Force Food Service Program, The Sandwich Meal
TF 6573	Fast Sandwich Making
TF 6333	Quick Breads
TF 5922	Basic Meat Cookery
TF 6194	Seafood Cookery
SFP 1662	Poultry Cookery
SFP 1344	Air Force Food Service Program—Preparation of Salads
TF 6135	Air Force Food Service Program—Vegetable Preparation
TF 6190	Sweet Doughs
TF 6571	Broiling
TF 6444	The Finishing Touch
TF 5921	Preparing Ration—Dense Foods
TF 1-5117	Food Conservation—The Dollars and Sense of Good Eating

COOK COURSE

Table of Contents

PLAN OF INSTRUCTION
(Technical Training)

COOK

9-5

AIR TRAINING COMMAND

LOWRY TECHNICAL TRAINING CENTER

1 April 1975 - Effective 3 April 1975 with Class 750403

POI 3ABR62230/3AQR62220

LIST OF CURRENT PAGES

This POI consists of 21 current pages issued as follows:

Page No.	Issue
TITLE	Original
A	Original
i	Original
1 thru 16	Original
ANNEX (17 and 18)	Original

DISTRIBUTION: TLG 6, TTOC 10, TTOR 1, TTOX 2, TSE 1, TTE 1, MOM 1, ATC/TTMS 1, ATC/CCAF/AY 2, AUL 1.

MODIFICATIONS

Pages 1 & 2 of this publication has (have) been deleted in adapting this material for inclusion in the "Trial Implementation of a Model System to Provide Military Curriculum Materials for Use in Vocational and Technical Education." Deleted material involves extensive use of military forms, procedures, systems, etc. and was not considered appropriate for use in vocational and technical education.

PLAN OF INSTRUCTION (Continued)

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE
6. Sanitation a. Given practical problems involving food handlers, determine corrective actions to maintain personal hygiene. b. Given practical problems concerning sanitation, identify measures to prevent communicable diseases and to control insects and rodents.	8 (6/2)	Column 1 Reference — STS Reference 6a — 5a 6b — 5b, 5c, 5e Instructional Materials SW 3ABR62230-I-4, Sanitation AFM 146-7 AFM 163-8 AFR 161-6, Control of Communicable Diseases in Man AFP 161-22, Sanitary Food Service Instructor's Guide 1969 Audio Visual Aids Transparencies - Sanitation TF 5920, An Outbreak of Staphylococcus TF 8143, An Outbreak of Salmonella Infection FLC 19-0238, Sanitation: Rules Make Sense FLC 4-0094, Dining Room Sanitation TF 1-8104, The Rat Problem FLC 19-0237, Sanitation: Why All The Fuss CSSPI-1 Slide Presentation, Sanitation

PLAN OF INSTRUCTION NO. 3ABR62230/3AQR62220	DATE 1 April 1975	BLOCK NO. I	PAGE NO. 3

PLAN OF INSTRUCTION (Continued)

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE
		Training Methods Discussion/Demonstration (5.5 hrs) Performance (.5 hr) Complementary Technical Training (2 hrs)
7. Obtaining and Accounting for Subsistence, Records, and Meals Served	16 (12/4)	Column 1 Reference — STS Reference 7a — 12d 7b — 12d 7c — 12g
a. Given a list of subsistence items and a subsistence request, prepare the request.	(4)	Instructional Materials SW 3ABR62230-I-5, Obtaining and Accounting for Subsistence, Records, and Meals Served AFM 146-7
b. Given a cook's worksheet for the breakfast meal, prepare a Senior Cook's Requisition.	(4)	Audio Visual Aids Transparencies - Subsistence Forms Set
c. Given dining hall headcount information, prepare the Dining Hall Signature Record and Cash Collection Record to account for meals served.	(4)	Training Methods Discussion/Demonstration (10 hrs) Performance (2 hrs) Complementary Technical Training (4 hrs)
8. Storeroom Procedures	8 (6/2)	Column 1 Reference — STS Reference 8a — 4a(1) 8b — 12d 8c — 12d
a. Describe procedures used for storing perishable and nonperishable food items.		Instructional Materials SW 3ABR62230-I-6, Storeroom Procedures AFM 146-7 AFM 163-8
b. Using information from a subsistence request, prepare a Field Ration Dining Hall Stock Record.		Audio Visual Aids Transparencies - Storeroom CSSP-I-2, Slide Presentation, Storeroom Procedures
c. Using information from stock record cards, prepare a DD Form 160, Inventory of Class ( ) Quartermaster Supplies.		

PLAN OF INSTRUCTION NO. 3ABR62230/3AQR62220	DATE 1 April 1975	BLOCK NO. I	PAGE NO. 4

PLAN OF INSTRUCTION (Continued)

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION HOURS	3 SUPPORT MATERIALS AND GUIDANCE
		Training Methods Discussion/Demonstration (5 hrs) Performance (1 hr) Complementary Technical Training (2 hrs)
9. Nutrition a. Given a list of nutrients, identify the function of each nutrient. b. Describe the nutritional losses that occur during food preparation and list the preventive measures used to prevent such losses.	6 (6/0)	Column 1 Reference — STS Reference 9a — 13 9b — 13 Instructional Materials SW 3ABR62230-I-7, Nutrition AFM 146-7 AFR 160-95, Nutritional Standards Audio Visual Aids Transparencies - Nutrition FLC 6-115, Food Nutrition TL 8227F, Nutrition Metabolism Training Methods Discussion/Demonstration (5.5 hrs) Written Exercise (.5 hrs)
10. Flight and Missile Feeding a. Describe the procedures used in the preparation of flight and missile meals. b. Using simulated food items, assemble a flight sandwich meal.	6 (6/0)	Column 1 Reference — STS Reference 10a — 9a, b, c 10b — 9a, b, c Instructional Materials SW 3ABR62230-I-8, Flight and Missile Feeding AFM 146-2 AFM 146-7 AFM 163-8 AFR 161-6

PLAN OF INSTRUCTION NO. 3ABR62230/3A0R62220	DATE 1 April 1975	BLOCK NO. I	PAGE NO. 5

PLAN OF INSTRUCTION (Continued)

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE
		Audio Visual Aids Transparencies - Flight and Missle Feeding TF 6074, The Sandwich Meal TF 6573, Fast Sandwich Making TF 6236, Mission Support Meals Simulated Food Items Training Methods Discussion/Demonstration (5.5 hrs) Written Exercise (.5 hrs)
11. Meat Identification	10	Column 1 Reference — STS Reference 11a — 6b 11b — 6b
a. Given a drawing of a beef carcass, identify the primal cuts of meat.	(10/0) (6)	
b. Given a list of poultry and seafood items, identify the class of each item.	(4)	Instructional Materials SW 3ABR62230-I-9, Meat Identification AFM 146-6, Meat Processing Ration Issue AFM 146-7 Audio Visual Aids Transparencies - Meat Identification CSSP-I-3, Slide Presentation, Beef CSSP-I-4, Slide Presentation, Veal CSSP-I-5, Slide Presentation, Pork Training Methods Discussion/Demonstration (9 hrs) Written Exercise (1 hr)
12. Measurement Test and Test Critique	2	
13. Related Training (identified in course chart)	10	

PLAN OF INSTRUCTION NO. 3ABR62230/3AQR62220	DATE 1 April 1975	BLOCK NO. 1	PAGE NO. 6

PLAN OF INSTRUCTION	COURSE TITLE: Cook
BLOCK TITLE: Role of the Cook	

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE
1. Use of Civilians in Dining Halls and Customer Relations a. Describe the desired relationship between military and civilian employees in the dining hall. b. Identify techniques which are relevant to customer rapport in the dining hall.	6 (6/0)	Column 1 Reference — STS Reference 1a — 12b 1b — 12b Instructional Materials SW 3ABR62230-II-1, Use of Civilians in Dining Halls and Customer Relations AFM 146-7, Food Service Management Audio Visual Aids Transparencies - Customer Relations FLC 3-0199, Courtesy, Food Service is People Service FLC 3-0196, Courtesy, The Inside Story FLC 20-0170, Taking the Order FLC 3-0197, Cafeteria Service Training Methods Discussion/Demonstration (5.5 hrs) Written Exercise (.5 hrs)
2. Equipment a. Given AFM 146-8 and a list of fixed equipment, identify the operation and maintenance procedure for each item. b. Given AFM 146-8 and a list of portable equipment, identify the operation and maintenance procedure for each item.	12 (12/0) (6) (2)	Column 1 Reference — STS Reference 2a — 10b, 5d, 5f 2b — 10a, 5d, 5f 2c — 11 Instructional Materials SW 3ABR62230-II-2, Equipment AFM 146-8, Operation and First Echelon Maintenance of Food Service Equipment

PLAN OF INSTRUCTION NO. 3ABR62230/3AQR62720	DATE 1 April 1975	BLOCK NO. II	PAGE NO. 7

PLAN OF INSTRUCTION (Continued)

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE
c. Given practical problems concerning equipment safety, determine precautions that have been violated.	(4)	Audio Visual Aids Transparencies - Equipment CSSP-II-1, Slide Presentation, Introduction to Culinary Equipment FLC 11-0016, Kitchen Safety: Preventing Machine Injuries FLC 11-0017, Kitchen Safety: Preventing Cuts and Strains FLC 11-0015, Kitchen Safety: Preventing Burns FLC 11-0014, Kitchen Safety: Preventing Falls FLC 4-0093, Dining Room Safety Training Methods Discussion/Demonstration (10 hrs) Performance (2 hrs)
3. Cooking Terms, Seasoning Agents, and Weights and Measurements a. Given a list of cooking terms and definitions, match the term with the definition. b. Given a list of food items and seasoning agents, match the agent with the food item.	6 (6/0)	Column 1 Reference: 3a, 3b — STS Reference: 4a(1), 6e Instructional Materials SW 3ABR62230-II-3, Cooking Terms, Seasoning Agents, and Weights and Measures AFM 146-7 AFM 146-12, Armed Forces Recipe Services-Index and Recipes Audio Visual Aids Transparencies - Cooking Terms, Seasoning Agents, and Weights and Measurements CSSP-II-2, Slide Presentation, Cooking Terms FLC 21-0057, Using Standardized Recipes CSSP-II-3, Slide Presentation, Herbs and Spices Training Methods Discussion/Demonstration (5.5 hrs) Performance (.5 hrs)

PLAN OF INSTRUCTION NO. 3ABR62230/3AQR62220	DATE 1 April 1975	BLOCK NO. II	PAGE NO. 8

PLAN OF INSTRUCTION (Continued)

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE
4. Principles of Food Preparation	28	Column 1 Reference / STS Reference
	(28/0)	4a — 6e, 7a, 7b
a. Identify the two methods of meat cookery and describe the variations of each method.	(15)	4b — 3c(1), (2) 4c — 6d 4d — 7c 4e — 6d
b. Describe the preparation and submission of the Consumer Level Quality Audit Program (COLEQUAP).	(1)	4f — 7a, 7b
c. Identify categories of vegetables and describe the method of preparation for each category.	(5)	**Instructional Materials** SW 3ABR62230-II-4, Principles of Food Preparation AFM 146-7 AFM 146-12 AFM 163-8, Food Service Sanitation
d. Identify the techniques used in the preparation of quick breads.	(2)	**Audio Visual Aids** Transparencies - Food Preparation TF 6333, Quick Bread
e. List the rules used when preparing a tossed salad.	(3)	TF 10-3999, Breakfast Meal TF 5922, Basic Meat Cookery SFP 1662, Poultry Cookery
f. Describe methods used for the preparation of miscellaneous food items.	(2)	TF 6194, Seafood Cookery SFP 1344, Preparation of Salads TF 6135, Vegetable Preparation TF 6190, Sweet Doughs TF 6571, Broiling TF 6444, The Finishing Touch TF 4976, Food Preparation FLC 7-0081, Give Your Eggs a Break FLC 18-0098, Rush Hour Service FLC 8-0078, How Do You Look When it Counts FLC 8-0121, Hamburger Sandwich FLC 19-0189, Sandwich Preparation and Presentation FLC 16-0179, Presentation of Foods and Beverages TF 5921, Preparation of Ration Dense Foods
		Training Methods Discussion/Demonstration (24 hrs) Performance (4 hrs)

PLAN OF INSTRUCTION NO. 3ABR62230/3A0R62220	DATE 1 April 1975	BLOCK NO. II	PAGE NO. 9

PLAN OF INSTRUCTION (Continued)

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE
5. Progressive Cookery and Waste Prevention a. Describe the procedure used in progressive cookery. b. Identify the major causes of food waste.	6 (6/0)	Column 1 Reference — STS Reference 5a — 7a, 7b 5b — 7a, 7b Instructional Materials SW 3ABR62230-II-5, Progressive Cookery and Waste Prevention AFM 146-7 AFM 163-8 Audio Visual Aids Transparencies - Progressive Cookery and Waste Prevention TF 1-5117DU, Food Conservation FLC 16-0180, Preventing Waste Training Methods Discussion/Demonstration (5.5 hrs) Performance (.5 hr)
6. Measurement Test and Test Critique	2	
7. Related Training (identified in course chart)	20	

PLAN OF INSTRUCTION NO. 3ABR62230/3AQR62220	DATE 1 April 1975	BLOCK NO. II	PAGE NO. 10

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PLAN OF INSTRUCTION	COURSE TITLE: Cook
BLOCK TITLE: Dining Hall Operations, Phase 2	

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE

1. Short Order Preparation and Service
 	
a. Using the completed cook's worksheet, applicable recipes, designated food items, and required equipment; prepare, cook, and serve the short order meal to meet Air Force Standards.
 	
b. Given selected cleaning materials, clean equipment and facilities used in the preparation of the short order meal.
	38
	(30/8)
	(22)
	
	(8)
		Column 1 Reference — STS Reference
		1a — 6a,b,c,d,e,7a,b,c,8a,b,c,d,e,10a,b
		11
		1b — 5d,f
		
		Instructional Materials
		SG 3ABR62230-IV-1, Short Order Preparation and Service
		SW 3ABR62230-I-4, Sanitation
		SW 3ABR62230-I-5, Obtaining and Accounting for Subsistence, Records, and Meals Served
		SW 3ABR62230-I-7, Nutrition
		SW 3ABR62230-I-9, Meal Identification
		SW 3ABR62230-II-1, Use of Civilians in Dining Halls and Customer Relations
		SW 3ABR62230-II-2, Equipment
		SW 3ABR62230-II-3, Cooking Terms, Seasoning Agents, and Weights and Measures
		SW 3ABR62230-II-4, Principles of Food Preparation
		SW 3ABR62230-II-5, Progressive Cookery and Waste Prevention
		
		Training Equipment
		Fixed and portable dining hall and kitchen equipment
		
		Training Methods
		Performance (30 hrs)
		Complementary Technical Training (8 hrs)
		
		Instructional Environment/Design
		Laboratory (30 hrs)
		Group/Lock Step
		
		Instructional Guidance
		Divide class into two sections. An instructor will be assigned to each section. Assign student to serving line duties during the short order meal.

PLAN OF INSTRUCTION NO. 3ABR62230/3A0R62220	DATE 1 April 1975	BLOCK NO. IV	PAGE NO. 14

PLAN OF INSTRUCTION (Continued)

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE

2. Breakfast Preparation and Service
 	
a. Using the completed cook's worksheet, applicable recipes, designated food items, and required equipment; prepare, cook, and serve the breakfast meal to meet Air Force standards.
 	
b. Given selected cleaning materials, clean equipment and facilities used in the preparation of the breakfast meal.
	37
	(27/10)
	(19)
	
	(8)
		Instructional Guidance
		Evaluate student performance to insure compliance with established food service standards. Assign student to preparation and cooking of menu items for the short order meal. Evaluate student performance to insure compliance with established food service standards.
		
		Column 1 Reference — **STS Reference**
		2a — 6a,b,c,d,e,7a,b,c,8a,b,c,d,e,10a,b 11
		2b — 5d,f
		
		Instructional Materials
		SG 3ABR62230-IV-2, Breakfast Preparation and Service
		SW 3ABR62230-I-4, Sanitation
		SW 3ABR62230-I-5, Obtaining and Accounting for Subsistence, Records, and Meals Served
		SW 3ABR62230-I-7, Nutrition
		SW 3ABR62230-I-9, Meat Identification
		SW 3ABR62230-II-1, Use of Civilians in Dining Halls and Customer Relations
		SW 3ABR62230-II-2, Equipment
		SW 3ABR62230-II-3, Cooking Terms, Seasoning Agents, and Weights and Measures
		SW 3ABR62230-II-4, Principles of Food Preparation
		SW 3ABR62230-II-5, Progressive Cookery and Waste Prevention
		
		Training Equipment
		Fixed and portable dining hall and kitchen equipment
		
		Training Methods
		Performance (27 hrs)
		Complementary Technical Training (10 hrs)
		
		Instructional Environment/Design
		Laboratory (27 hrs)
		Group/Lock Step

PLAN OF INSTRUCTION NO. 3ABR62230/3AQR62220	DATE 1 April 1975	BLOCK NO. IV	PAGE NO. 15

PLAN OF INSTRUCTION (Continued)

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE
		Instructional Guidance Divide class into two sections. An instructor will be assigned to each section. Assign student to serving line duties during the breakfast meal. Evaluate student performance to insure compliance with established food service standards. Assign student to preparation and cooking of menu items for the breakfast meal. Evaluate student performance to insure compliance with established food service standards.
3. Measurement Test and Test Critique	2	
4. Student Critique, Traffic Safety, Pre-departure Briefing, and Graduation	1	
5. Related Training (identified in course chart)	2	

PLAN OF INSTRUCTION NO. 3ABR62230/3AOR62220	DATE 1 April 1975	BLOCK NO. IV	PAGE NO. 16

9-5 18

LESSON PLAN (Part I, General)

APPROVAL OFFICE AND DATE	INSTRUCTOR
TLGTC-1 /Smith/1 Apr 75	
COURSE NUMBER	**COURSE TITLE**
3ABR62230/3AQR62231	Cook
BLOCK NUMBER	**BLOCK TITLE**
I	Food Service Techniques

LESSON TITLE
Sanitation

LESSON DURATION

CLASSROOM/Laboratory	Complementary	TOTAL
6	2	8

POI REFERENCE

PAGE NUMBER	PAGE DATE	PARAGRAPH
3	1 April 1975	5 a, b

STS REFERENCE

NUMBER	DATE
622XO 5a, 5b, 5c, 5e	21 November 1974

SUPERVISOR APPROVAL

SIGNATURE	DATE	SIGNATURE	DATE

PRECLASS PREPARATION

EQUIPMENT LOCATED IN LABORATORY	EQUIPMENT FROM SUPPLY	CLASSIFIED MATERIAL	GRAPHIC AIDS AND UNCLASSIFIED MATERIAL
Overhead Projector 16mm Projector 35mm Projector	NA	NA	SW 3ABR62230-I-5 AFM 146-7,AFM 163-8 AFR 161-6.AFP 161-22 Transparencies-Sani. TF 5920, TF 8143 FLC 19-0238,FLC4-009 TF 1-8104,FLC 19-023 CSSPI-1 Slide Pres Sanitation

CRITERION OBJECTIVES AND TEACHING STEPS

5. Sanitation

a. Given practical problems involving food handlers, determine corrective actions to maintain personal hygiene.

b. Given practical problems concerning sanitation, identify measures to prevent communicable diseases and to control insects and rodents.

(Teaching steps are listed in Part II)

LP 3ABR62230-I· 5

Introduction (minutes)

Attention

Review

Motivation

Overview

Transition

Body (hours minutes)	
PRESENTATION	
5. Sanitation	
a. Given practical problems involving food handlers, determine corrective actions to maintain personal hygiene.	
(1) Food service sanitation standards	
(a) Define sanitation	
(b) Define hygiene	
	30

b. Given practical problems concerning sanitation, identify measures to prevent communicable diseases and to control insects and rodents.

(1) Communicable disease

(2) Sanitation of facilities, equipment and utensils

(a) Importance of good facility sanitation

(b) Importance of good equipment and utensil sanitation

(3) Standards for personal hygiene

(a) Meaning of the term personal hygiene

(b) Responsibility in maintaining personal hygiene

(4) Disease control measures

41

(a) Sources of disease	
(b) Control of source	
(c) Control of means of transmission	
(d) Medical Inspections	
(5) Methods of insect and rodent control	

(a) Description of insects and rodents

(b) Habits of vermin

1. housefly

2. cockroach

3. rat

43

(c) Control measures

1. housefly

2. cockroach

3. rat

(d) Other insects

APPLICATION

Have students complete exercises in there workbook.

EVALUATION

Look over exercises for correctness

LP 3ABR62230-I- 5

Conclusion (minutes)

Summary

Remotivation

Assignment

Closure

LESSON PLAN (Part I, General)

APPROVAL OFFICE AND DATE	INSTRUCTOR
TLGTC- 1'Smith/1 Apr 75	
COURSE NUMBER	**COURSE TITLE**
3ABR62230/3AQR62231	Cook
BLOCK NUMBER	**BLOCK TITLE**
I	Food Service Techniques

LESSON TITLE
Storeroom Procedures

LESSON DURATION

CLASSROOM/Laboratory	Complementary	TOTAL
6	2	8

POI REFERENCE

PAGE NUMBER	PAGE DATE	PARAGRAPH
4 and 5	1 April 1975	7 a. b. c

STS REFERENCE

NUMBER	DATE
622X0 4a(1), 12d	21 November 1974

SUPERVISOR APPROVAL

SIGNATURE	DATE	SIGNATURE	DATE

PRECLASS PREPARATION

EQUIPMENT LOCATED IN LABORATORY	EQUIPMENT FROM SUPPLY	CLASSIFIED MATERIAL	GRAPHIC AIDS AND UNCLASSIFIED MATERIAL
Overhead Projector 35mm Projector	NA	NA	SW 3ABR62230-I-7 AFM 146-7 AFM 163-8 Transparencies - Storeroom CSSP-I-2, Slide Pres Storeroom Procedures

CRITERION OBJECTIVES AND TEACHING STEPS

7. Storeroom Procedures

a. Describe procedures used for storing perishable and nonperishable food items.
b. Using information from a subsistence request, prepare a Field Ration Dining Hall Stock Record.
c. Using information from stock record cards, prepare a DD Form 160, Inventory of Class ( ) Quartermaster Supplies.

(Teaching steps are listed in Part II)

FORM AUG 72 770

☆ GPO: 1972 779-399/23

Introduction (minutes)

Attention

Review

Motivation

Overview

Transition

Body (hours minutes)	
Presentation	
7. Storeroom Procedures	
a. Describe procedures used for storing perishable and nonperishable food items.	
(1) Storeroom	
(a) Types of storage facilities	
(2) Storage layout and arrangement	
(3) Refrigeration techniques for the storeroom	
(4) Sanitation requirements for the storeroom	
b. Using the information from a subsistence request, prepare a Field Ration Dining Hall Stock Record.	

(1) Subsistence control

(a) AF Form 147, Field Ration Dining Hall Stock Record

1. format

2. preparation

APPLICATION

Have Students complete AF Form 147

EVALUATION

Check AF Form 147 for accuracy

c. Using information from stock record cards, prepare a DD Form 160, Inventory of Class () Quartermaster Supplies

(1) DD Form 160

(a) format

(b) preparation

APPLICATION

Have students complete DD form 160

EVALUATION

Check DD form 160 for accuracy

Conclusion (minutes)

Summary

Remotivation

Assignment

Closure

LESSON PLAN (Part I, General)

APPROVAL OFFICE AND DATE	INSTRUCTOR
TLGTC-1 /Smith/1 Apr 75	
COURSE NUMBER	**COURSE TITLE**
3ABR62230/3AQR62231	Cook
BLOCK NUMBER	**BLOCK TITLE**
I	Food Service Techniques
LESSON TITLE	
Nutrition	

LESSON DURATION

CLASSROOM /Laboratory	Complementary	TOTAL
6	0	6

POI REFERENCE

PAGE NUMBER	PAGE DATE	PARAGRAPH
5	1 April 1975	8 a, b

STS REFERENCE

NUMBER	DATE
622XO 13,	21 November 1974

SUPERVISOR APPROVAL

SIGNATURE	DATE	SIGNATURE	DATE

PRECLASS PREPARATION

EQUIPMENT LOCATED IN LABORATORY	EQUIPMENT FROM SUPPLY	CLASSIFIED MATERIAL	GRAPHIC AIDS AND UNCLASSIFIED MATERIAL
Overhead Projector 16mm Projector	NA	NA	SW 3ABR62230-I-8 AFM 146-7 Transparencies - Nutrition

CRITERION OBJECTIVES AND TEACHING STEPS

8. Nutrition

a. Given a list of nutrients, identify the function of each nutrient.
b. Describe the nutritional losses that occur during food preparation and list the preventive measures used to prevent such losses.

(Teaching steps are listed in Part II)

☆ GPO: 1978 770-306/53

LP 3ABR62230-I- A

Introduction (minutes)

Attention

Review

Overview

Motivation

Transition

Body (hours minutes)

Presentation

8. Nutrition

(a) Given a list of nutrients, identify the function of each nutrient.

(1) Nutritional Values

(a) Essential nutrients

(b) Other classes of nutrients

(c) Vitamins

(d) Water

(b) Describe the nutritional losses that occur during food preparation and list the preventative measures used to prevent such losses.

(1) The human diet

(2) Conservation of nutrients

53

(3) Effects of cooking and preventative measures

APPLICATION

Have students complete questions in SW.

EVALUATION

Check questions for correctness

LP 3ABR62230-I- 8

Conclusion (minutes)

Summary

Remotivation

Assignment

Closure

LESSON PLAN (Part I, General)

APPROVAL OFFICE AND DATE	INSTRUCTOR
TLGTC-1/Smith/1 Apr 75	
COURSE NUMBER	**COURSE TITLE**
3ABR62230/3A0R62231	Cook
BLOCK NUMBER	**BLOCK TITLE**
I	Food Service Techniques

LESSON TITLE
Meat Identification

LESSON DURATION

CLASSROOM /Laboratory	Complementary	TOTAL
10	0	10

POI REFERENCE

PAGE NUMBER	PAGE DATE	PARAGRAPH
6	1 April 1975	10 a. b

STS REFERENCE

NUMBER	DATE
622X0 6b.	21 November 1974

SUPERVISOR APPROVAL

SIGNATURE	DATE	SIGNATURE	DATE

PRECLASS PREPARATION

EQUIPMENT LOCATED IN LABORATORY	EQUIPMENT FROM SUPPLY	CLASSIFIED MATERIAL	GRAPHIC AIDS AND UNCLASSIFIED MATERIAL
Overhead Projector 35mm Projector	NA	NA	SW 3ABR62230-I-10 AFM 146-6,AFM 146-7 Transparencies-Meat Identification CSSP-I-3 Slide -Beef CSSP-I-4 Veal CSSP-I-5 Pork

CRITERION OBJECTIVES AND TEACHING STEPS

10. Meat Identification

a. Given a drawing of a beef carcass, identify the primal cuts of meat.
b. Given a list of poultry and seafood items, identify the class of each item.

(Teaching steps are listed in Part II)

Introduction (minutes)

Attention

Review

Overview

Motivation

Transition

Body (hours minutes)	
Presentation	
10. Meat Identification	
a. Given a drawing of a beef carcass, identify the primal cuts of meat.	
(1) Categories of meat	
(2) Boneless beef issue	
(a) Definitions	
(b) Grades of beef	
(c) Composition of beef	
(d) Portion cuts	
(3) Pork issues	
(a) Grades of pork	
(b) Composition of pork	
(c) Portion cuts	

(4) Veal issues

(a) Grades of veal

(b) Composition of veal

(c) Portion cuts

b. Given a list of poultry and seafood items, identify the class of each item.

(1) Poultry issues

(a) Types of poultry

(b) Cuts

(c) Processing

(2) Seafood issues

(a) Classes

(b) Condition

(c) Processing

APPLICATION

Have students complete exercises in WB

Evaluation

Check exercises for correctness

41

Conclusion (minutes)

Summary

Remotivation

Assignment

Closure

60

Department of Logistics Training

Cook Course

BLOCK I
FOOD SERVICE TECHNIQUES

9-5

(PART I)

July 1974

USAF SCHOOL OF APPLIED AEROSPACE SCIENCES
Department of Logistics Training
Lowry Air Force Base, Colorado

PURPOSE OF STUDY GUIDES, WORKBOOKS, PROGRAMMED TEXTS AND HANDOUTS

Study Guides, Workbooks, Programmed Texts and Handouts are training publications authorized by Air Training Command (ATC) for student use in ATC courses.

The STUDY GUIDE (SG) presents the information you need to complete the unit of instruction, or makes assignments for you to read in other publications which contain the required information.

The WORKBOOK (WB) contains work procedures designed to help you achieve the learning objectives of the unit of instruction. Knowledge acquired from using the study guide will help you perform the missions or exercises, solve the problems, or answer questions presented in the workbook.

The STUDY GUIDE AND WORKBOOK (SW) contains both SG and WB material under one cover. The two training publications are combined when the WB is not designed for you to write in, or when both SG and WB are issued for you to keep.

The PROGRAMMED TEXT (PT) presents information in planned steps with provisions for you to actively respond to each step. You are given immediate knowledge of the correctness of each response. PTs may either replace or augment SGs and WBs.

The HANDOUT (HO) contains supplementary training materials in the form of flow charts, block diagrams, printouts, case problems, tables, forms, charts, and similar materials.

Training publications are designed for ATC course use only. They are updated as necessary for training purposes, but are NOT to be used on the job as authoritative references in preference to Technical Orders or other official publications.

TABLE OF CONTENTS

MODIFICATIONS

3ABR62230 I-1
Through I-3 of this publication has (have) been deleted in adapting this material for inclusion in the "Trial Implementation of a Model System to Provide Military Curriculum Materials for Use in Vocational and Technical Education." Deleted material involves extensive use of military forms, procedures, systems, etc. and was not considered appropriate for use in vocational and technical education.

SANITATION

OBJECTIVES

a. Given practical problems involving food handlers, determine corrective actions to maintain personal hygiene.

b. Given practical problems concerning sanitation, identify measures to prevent communicable diseases and to control insects and rodents.

INTRODUCTION

The preservation of the health of the Air Force is the responsibility of every individual member of the Air Force. Even one airman's ignorance of or indifference to the practices of military sanitation can counteract much of the combined effort of the many services working for his welfare. For his own sake, as well as for the sake of his comrades, it is imperative that every airman know and observe the rules of hygiene and sanitation and adhere to the principles of good health and good living.

INFORMATION

FOOD SERVICE SANITATION STANDARDS

Sanitation is defined as the effective use of measures which will create and maintain healthful environmental conditions. Among these measures are the safeguarding of food and water and the control of disease-bearing insects and rodents.

Hygiene is defined as the employment, by the individual, of practices which will keep him healthy. Among these practices are proper eating, body cleanliness, and the avoidance of known sources of disease.

Military sanitation includes the practices of both environmental sanitation and personal hygiene, particularly within the framework of situations and experiences associated with Air Force life.

COMMUNICABLE DISEASES

Communicable diseases are those illnesses which can be transmitted from man to man or from animal to man. The term communicable includes contagious, infectious, or catching diseases which results from close or direct contact with infected persons; from exposure to the breath, cough, or discharge of such persons; or from the bites of animals. Communicable diseases may also be transmitted by food, water, milk, air, and insects. Communicable diseases may be classified into several groups including respiratory and intestinal.

SANITATION OF FACILITIES, EQUIPMENT, AND UTENSILS

Importance of Good Facility Sanitation

Even the most appetizing food can cause illness if, through improper handling, it becomes contaminated with disease germs. Outbreaks of food poisoning, dysentery, and typhoid fever may result from unsanitary practices in kitchens and dining halls. Persons who handle food must maintain the highest standards of personal hygiene and sanitation.

Importance of Good Equipment and Utensil Sanitation

Proper washing and sanitizing of eating and cooking utensils is important for health reasons. Also, nobody wants to eat from unclean dishes or with soiled flatware. Therefore, it is essential that all food service personnel understand the reasons and basic principles involved in proper, adequate, hygienic dishwashing procedures. It has been demonstrated many times that disease organisms of various kinds may be found on utensils that have been inadequately sanitized. Improper dishwashing can also cause outbreaks of food poisoning.

Not too many years ago, and even today, a common term used in connection with sanitizing utensils is sterilization (the destruction of all microorganisms by chemical methods). This is an incorrect term since tableware or utensils are rarely sterilized, which means complete sterilization of utensils is seldom needed or achieved. Current dishwashing procedures and techniques, if carried out correctly, result in sanitizing eating and drinking utensils.

There are two methods for washing and sanitizing utensils and equipment. The first is known as manual dishwashing because the actual washing and sanitizing is done by hand. The second method is mechanical dishwashing since the actual washing is done by machine. In future lessons we will discuss the above methods in much greater detail.

STANDARDS FOR PERSONAL HYGIENE

Each mess worker is responsible for protecting his health as well as the health of his fellow airmen by practicing good habits of personal hygiene. To remove germs, hands should be washed frequently with soap and water. When coughing or sneezing, the nose and mouth should be covered with a handkerchief. Drinking cups, canteens, towels, or any of the personal belongings of others should not be used. During the acute stage of a cold, close contact with others is to be avoided.

Meaning of the Term Personal Hygiene

Personal hygiene is the practice of health rules by the individual to safeguard his own health and the health of others. Personal hygiene is often thought of as being the same as personal cleanliness. Yet, while cleanliness of the body is important, it is but one of the many essentials of healthful living.

Responsibility in Maintaining Personal Hygiene

A person's fulfillment of the obligation of honorable military service involves doing the best job possible in any given assignment. Thus, the individual should maintain his health and physical fitness at the highest level and do everything possible to protect the health of other members of his organization. This calls for a clear understanding and continual application of personal hygiene measures. This also requires that he seek needed medical care without delay in order to avert more serious illness, hasten recovery, and prevent the spread of disease. The Air Force provides for its members a medical service of the highest possible caliber; therefore, the individual has no reason for delaying needed medical care, resorting to self-treatment, or seeking treatment from unauthorized sources. All such actions could prove dangerous.

DISEASE CONTROL MEASURES

Through the application of a variety of measures, the Air Force attempts to make the individual's surroundings as healthful as possible. These measures include the provisions for water and food that are free of disease germs and poisons and facilities that are adequate for the proper disposal of body waste.

Sources of Disease

The health of the troops depends upon the consistent, intelligent application of the rules of healthful living by each and every member of the unit. The airman must avoid food and drink that may be contaminated. He must protect himself against insects and must not expose himself unnecessarily to the germs of venereal disease, dysentery, malaria, and a host of other infectious diseases. He must definitely avoid close contact with natives in areas where sanitation and hygiene are still in a primitive state.

Control of Source

Cleanliness of the body and clothing is the first line of defense against body parasites. In certain situations special measures must be used to control body lice, mosquitoes, fleas, and other insects and rodents.

Special health hazards exist in each geographical area, climate, and living situation. As the need arises the men are given instructions in the nature of these dangers and in ways of guarding against them. Among the special measures for individual protection are the use of mosquito nets, wearing of proper clothing, safeguards against frostbite, addition of salt to the diet, and use of individual water purification tablets. The effectiveness of these and other portective measures depends upon the consistency and appropriateness with which they are used by each individual in the unit.

Control of Means of Transmission

Some simple measures which will help to keep the airman healthy are as follows:

o Don't consume foods and beverages from unauthorized sources; they are likely to contain disease germs or poisons.

o Don't soil the ground with urine or feces. Use the latrine.

o Keep your fingers and contaminated objects out of your mouth. Wash your hands following any contamination, before eating or preparing food, and before using your fingers in the care of your mouth and teeth.

o Cleanse the mouth and teeth thoroughly at least once each day. You can prevent most dental diseases by correct use of a toothbrush and toothpicks.

o Avoid the bites of insects by keeping your body clean; wearing proper protective clothing; and using a mosquito net, insectides, and repellents.

o Don't share with others such personal items as pipes, mouth organs, towels, toothbrushes, handkerchiefs, and shaving items.

o Avoid contact with sources of disease. This applies particularly to natives and animals and areas where sanitation is poor and disease is prevalent.

Medical Inspections

Food handler's examinations are required to insure that all foods are prepared and served by personnel who are preparing and serving food are free from communicable disease. Communicable diseases, as used herein, are those diseases which are likely to be transmitted from a food handler to a food consumer.

METHODS OF INSECT AND RODENT CONTROL

No single measure will completely control the problems associated with the insects and rodents that infest food establishments. However, when we condense all the elements of an insect and rodent control program we find that this program is composed of two phases. The first of these two phases is the institution of basic sanitation measures such as proper refuse and garbage storage and removal to eliminate shelters for the breeding of the insects or rodents on the premises. It also includes installation of screens or door flashing to prevent the entry of pests into the establishment.

The second phase is the use of chemicals or pesticides to control insect and rodent pests that may gain entrance to the premises or to the property outside the building.

Description of Insects and Rodents

The most common insects and rodents found in food establishments are the common housefly, cockroach, and rat. There are other insects that cause problems, including several types of mites, beetles, bugs, and moths. These insects seldom cause disease, but cause the food products to be filthy and unwholesome.

Habits of Vermin

Although there are several types of vermin, we will cover only the three most common types.

HOUSEFLY. The housefly carries disease bacteria on and in its body. It lives and breeds in filth such as garbage, body wastes of human and animals, and sewage. If we allow it, the housefly may also live and breed in our food. When a fly walks over filth, he scrapes off some of the material and it sticks to his hairy body. If disease bacteria is in the material it will stick to his body. Some of the bacteria will be taken into his intestines when he feeds on the waste material. The fly then buzzes off to the kitchen or dining room where he walks over the food we eat and the utensils we use. As he walks over these, some of the bacteria are brushed off his body and into the food or utensils. Perhaps even more repulsive is the fact that the housefly has to vomit on solid food to soften it before he can eat. This is because the housefly cannot chew. In the vomiting process some of the bacteria that he has previously eaten is spread upon the food. Also, bacteria is present in the excreta of the fly. We know this as "fly specks." Flies transmit the organisms of more than 30 diseases such as dysentery, salmonellosis, typhoid fever, tuberculosis, cholera, and pin warms. It has been reported that a single fly can carry as many as 6 million bacteria on

the outside of it's body and as many as 25 million in it's intestines. It is easy to see how flies carry bacteria and spread disease and why it is so important to control flies in your establishment. It is also obvious that flies are filthy creatures. Even if we could be sure that there were no disease bacteria on the particular flies that we see walking on our foods, we would still consider them very objectionable.

COCKROACHES. Cockroaches are capable of carrying disease organisms and are very offensive. Scientists have found that cockroaches feed on human body wastes containing disease organisms and take the bacteria into their bodies. Later, these organisms may be found in the body waste of the cockroaches. They may carry microorganisms on the outside of their bodies as they crawl from toilets and sickrooms to the food and utensils in the kitchens and dining rooms. Thus, they may actually drag disease organisms from place to place.

RATS. Rats may carry a number of diseases. They eat and damage large amounts of food. Salmonellosis, leptospirosis, plague, and urine typhus fever are examples of diseases that may be spread by rats. Rats cause a tremendous money loss because of the food they eat and spoil and the damage they do to buildings and property. It has been estimated that each rat in the United States eats at least $5.00 worth of food in a single year and destroys or damages about ten times as much food and property. It has been estimated that there is at least one rat for every person in the United States. This means that the rat population of the country is probably greater than 200 million. Hence, the total cost to the country in supporting our tremendous rat population is more than 10 billion dollars a year. Rats have to gnaw constantly to keep their front or incisor teeth worn down. Because of this gnawing, rats damage all types of property, buildings, plumbing pipes, books, cloth, and leather. Rats contaminate everything they touch and foul much more. Food is contaminated by their droppings, their urine, and by the disease organisms carried on their bodies. All of these may get on any food or utensils with which rats come in contact. Rats prefer to travel and hunt for food at night. They are creatures of habit and almost always travel from their nests in their food sources and to the outside over the same paths. When rats run from place to place, they hug the wall. Rat runs are easy to find because dirt and oil from the hair of the rat rub off and blacken the surfaces that they touch. Some rats are good climbers and can go up rough brick walls and even travel along telephone and power lines. Rats have been called man's most cunning and intelligent enemy and a lot of planning and thought must be used to get the best of them.

Control Measures

The methods used for controlling rats, cockroaches, and flies are similar in many ways. We discuss some of these ways in the following paragraphs. First, it should be made difficult for the pests to get into

the dining hall. This can be done by insisting on proper construction, closing up cracks and other openings, and providing proper screens. Second, all necessary means should be used to kill the flies, cockroaches, and rats that do get in and this control must be repeated as often as necessary to keep them under control. Third, we must keep food away from the pests by keeping the dining hall thoroughly clean, garbage in covered containers, food covered, and supplies properly stored. Cutting off the pest's food supply is an important method of control. You have noticed that the importance of cleanliness of the premises in insect and rodent control has been mentioned again and again. This is because insects and rodents breed and live in dirt and filth. We know that these pests carry disease. Since it is obvious that cleanliness has definite value in preventing disease, it should be easy to see why it is so important to keep everything in a food service establishment spotless and shining. Keeping things clean and keeping out rats, cockroaches, and flies is not always easy, but it can be done. Following is a list of control measures.

HOUSEFLY

1. Clean up and remove all fly breeding places.

2. Screen the dining hall thoroughly.

3. Kill the flies that get in by spraying, swatting, poisoning, and trapping.

4. Keep garbage cans clean and covered when not in use.

5. Keep toilets and the entire establishment clean.

6. Keep food protected from flies.

COCKROACHES

1. Fill cracks and roach entryways with putty, plastic wood, etc.

2. Provide tight fitting doors and windows.

3. Inspect incoming supplies and kill any cockroaches present.

4. Keep the entire establishment neat, clean, and free of all food scraps.

5. Keep food covered.

6. Use effective chemical control measures.

RATS

1. Keep rats out by proper construction and repair of buildings.

2. Do away with trash piles and store supplies neatly.

3. Starve rats by keeping food away from them.

4. Keep garbage cans covered.

5. Keep food covered.

6. Protect food in storage rooms from rat gnawing.

7. Trap or poison rats inside and outside buildings.

OTHER INSECTS

1. Inspect incoming supplies to see that they are not infested. This will limit the chance of introducing them into the establishment.

2. Use old stock or supplies first. Remember our rule of "first in, first out."

3. Remove or clean up any spillage and destroy any infested foods.

4. Open only sufficient number of containers to supply immediate needs.

5. Store loose or bulky foods in durable containers with tight-fitting lids.

There may be specific problems involved in the control of insects infesting stored foods. The best authority for expert advice in controlling these infestations is your installation civil engineer.

QUESTIONS

Answer the questions outlined below. Write your answers in the spaces provided. You may refer to your notes and information in this SW.

1. Sanitation is defined as _____

_____

2. Hygiene is defined as _____

_____

_____

3. How are communicable diseases transmitted? _____

_____

_____

_____

4. What are two classifications of communicable diseases?

_____

_____

_____

5. What outbreaks may result from unsanitary practices in the kitchen and dining hall? _____

6. Personnel who handle food must maintain _____

_____

7. Proper _____ and _____ of eating and cooking utensils is important for health reasons.

8. Define in your own words the term personal hygiene. _____

_____

_____

9. Why should you seek needed medical care without delay?

_____

10. What are three infectious diseases? _____

_____

_____

11. Cleanliness of the body and clothing is the _____

_____

12. What are some of the special measures for individual protection?

13. How can we insure that all foods are prepared and served by personnel who are free from communicable disease?

14. The first phase of insect and rodent control is

15. List four diseases that may be spread by rats.

16. List three basic methods of fly control.

17. List three basic methods of cockroach control.

18. List three basic methods of rat control.

19. While preparing the supper meal, airman Jones accidentally cut his finger. Since it was just a small cut and stopped bleeding shortly afterwards, he did not bother to cover it. The next day his finger became discolored and swollen. What disease control measure should have been taken? Explain. _____

_____

_____

20. Airman Jones reported to the dining hall for duty with a bad cold. His supervisor was not aware of this and assigned him to the serving line. Airman Jones began coughing and sneezing. During the meal he left the serving line to use the latrine. He immediately returned to the serving line and began serving food. Was there a possibility of a communicable disease being transmitted? If your answer is yes, explain. _____

_____

_____

21. After the supper meal airman Burns was assigned to remove the leftover food from the serving line. He placed the food on a cart and pushed the cart into the kitchen. Airman Burns was told that he had a telephone call. When he returned to the kitchen, he realized that he had left the food on the cart and discovered that a fly had dropped into the food. What disease control measure could have prevented this? _____

_____

22. While working in the storeroom airman Doe noticed that several sacks of flour were being stored on the floor and had been damaged by rats. After inspecting the food supplies for further damage, he noticed rat droppings on the storage shelves. List three disease control measures that could have prevented this. _____

_____

_____

MODIFICATIONS

3ABR62230-I-5 of this publication has (have) been deleted in adapting this material for inclusion in the "Trial Implementation of a Model System to Provide Military Curriculum Materials for Use in Vocational and Technical Education." Deleted material involves extensive use of military forms, procedures, systems, etc. and was not considered appropriate for use in vocational and technical education.

Department of Logistics Training

Cook Course

BLOCK I
FOOD SERVICE TECHNIQUES

(PART II).

9-5

July 1974

LOWRY TECHNICAL TRAINING CENTER

Designed For ATC Course Use

DO NOT USE ON THE JOB

Supersedes SW 3ABR62230-I, December 1972

PURPOSE OF STUDY GUIDES, WORKBOOKS, PROGRAMMED TEXTS AND HANDOUTS

Study Guides, Workbooks, Programmed Texts and Handouts are training publications authorized by Air Training Command (ATC) for student use in ATC courses.

The STUDY GUIDE (SG) presents the information you need to complete the unit of instruction, or makes assignments for you to read in other publications which contain the required information.

The WORKBOOK (WB) contains work procedures designed to help you achieve the learning objectives of the unit of instruction. Knowledge acquired from using the study guide will help you perform the missions or exercises, solve the problems, or answer questions presented in the workbook.

The STUDY GUIDE AND WORKBOOK (SW) contains both SG and WB material under one cover. The two training publications are combined when the WB is not designed for you to write in, or when both SG and WB are issued for you to keep.

The PROGRAMMED TEXT (PT) presents information in planned steps with provisions for you to actively respond to each step. You are given immediate knowledge of the correctness of each response. PTs may either replace or augment SGs and WBs.

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Training publications are designed for ATC course use only. They are updated as necessary for training purposes, but are NOT to be used on the job as authoritative references in preference to Technical Orders or other official publications.

STOREROOM PROCEDURES

OBJECTIVES:

a. Describe procedures used for storing perishable and nonperishable food items.

b. Using the information from a subsistence request, prepare a Field Ration Dining Hall Stock Record.

c. Using the information from stock record cards, prepare a DD Form 160, Inventory of Class ( ) Quartermaster Supplies.

INTRODUCTION

In this lesson we will discuss the layout of a storage area for both perishable and nonperishable subsistence to include the proper sanitation standards to be maintained in both the dry and perishable storage areas. We shall also discuss the format and purpose of AF Form 147, Field Ration Dining Hall Stock Record, and DD Form 160, Inventory of Class ( ) Quartermaster Supplies. You will be required to prepare each form. We shall also discuss the correct procedures to follow while inspecting subsistence for condition and quantity.

INFORMATION

STOREROOM

The inspection you conduct upon the receipt of subsistence supplies are for the purpose of determining that the supplies are in proper quantity and quality or condition. Quantity inspections obviously are to be made when supplies are first received at the food service facility. AF Form 287, Subsistence Request, should be signed only upon completion of the inspection. Proper attention to detail by dining hall personnel insures that the proper amount of subsistence is received and that it is in good condition. Your job has only started when the subsistence reaches the dining hall. It remains for you to insure that such supplies are properly stored to prevent spoilage or damage during the period from the time of receipt to the time of use. The inspection you perform when the subsistence is received serve little purpose if the food is subsequently permitted to spoil or otherwise deteriorate.

Proper methods of storage of subsistence depends upon the kind of food and the form in which they arrive. Just as foods are different types, so are the facilities where they are to be stored. When foods have been received in satisfactory condition they must be stored properly to prevent loss and waste from pilferage, deterioration, and infestion. Adequate space should be provided to allow for orderly storage of different types of food in locations that are convienent to receiving and preparation areas. The types of food will determine the environment that must be maintained if the products are to remain in good condition.

Types of Storage Facilities

Dining hall storage is usually considered to be of two types - storage of perishable and storage of nonperishable food items.

NONPERISHABLE. Nonperishable food products, because of damage caused by dampness, keep best when stored in a dry location. The requirements of a dry storage area are reasonably simple. The storage space should be cool, dry, clean, well ventilated, and odorless.

Nonperishables include those supplies that may be stored for a reasonable period of time in unrefrigerated storage areas without serious danger of spoilage or deterioration. As a rule, only periodic condition inspections of nonperishable items are necessary. However, it is well to remember that certain nonperishables such as sugar, flour, paste products, dry beans, and cereals may become infested with insects and rodents.

Effective condition inspections of nonperishable food items require that emphasis be placed on the following points:

1. Look for discoloration. Discolored containers may indicate leakage. Discolored dried containers may indicate mold or other deterioration.

2. Check for misshaped containers. Such a condition may indicate spoilage.

3. Be alert for strange or unpleasant odors and taste. Good food has a wholesome odor and taste. Unpleasant or offensive smell or taste is usually an indication that food has started to spoil and is unfit for human consumption.

In conducting condition inspections of dry subsistence such as flour, sugar, and cereal, be especially alert for signs of dampness and for conditions that may be produced by prior dampness. The latter condition may be indicated by lumpiness, mustiness, mold, or mildew. In the event such signs are found in the supplies, the base veternarian must be called in to make an official inspection and to determine the proper disposition of the supplies. Actions must be taken to prevent further damage.

Canned food items make up the bulk of nonperishable subsistence received in the dining halls. You will need to be particularly alert in conducting the condition inspection of such subsistence.

Examine the outside of cans for holes, rust, swelling, and dents. Holes are usually indicated by leaking and discoloration of the can or label. The contents of a leaky can are almost certain to be spoiled. Rust on the can's exterior does not injure the contents of a can unless it has penetrated to the interior of the can. In the case of rust penetration, a leak usually develops and the contents are then spoiled. Dents may or may not be an indication of damage. Cans with dents should be inspected carefully to determine if the denting has caused a leak. If so, spoilage is to be expected. If there is no leak, the contents are probably alright. The taste will confirm it.

There are many types of can spoilage that may become apparent either upon receipt or during storage. Can spoilage is not prevalent in the United States but is often a problem overseas. The most common types of can spoilage are discussed in the following paragraphs.

A "swell" is a can that has both ends bulged out. A swell is caused by microorganisms, chemical reaction of the contents upon the metal of the container, insufficient vacuum, or over filling. In general, products in such cans are not safe for human consumption and should be rejected. There are exceptions to this rule of rejecting swells. In tropical temperatures for example, syrup and molasses incorrectly filled cans may swell but be in perfect condition. Slightly overfilled cans of apples and sauerkraut tend to swell in above normal temperature without deterioration. Under normal conditions such cans should return to their original shape without spoilage of their contents.

A "springer" may result from a mild swell. It may be caused by overfilling, insufficient exhausting, or evolution of hydrogen dioxide gas through bacterial action. When one end is pressed with the fingers, the opposite end bulges out. Products in such cans are not safe for human consumption and should be rejected.

A "flipper" is a can having little or no vacuum and with loose ends that may be pushed in or when one end is struck against a flat surface or jarred, the other end may be forced out. The end forced outward usually may be pushed back in by hand without forcing the other end out. Flippers are usually the result of insufficient exhausting. Contents may or may not be sound, depending on whether or not fermintation is observed or offensive odors are detected.

A "flat sour" is a type of spoilage resulting from the growth of certain organisms that produce large amounts of acid without gas formation giving the product a sour taste, a sour odor, and a turbidity to the liquid. The can is normal in appearance. Starchy vegetables are most often involved in this type of spoilage which is caused by improper cooling after processing.

A "leaker" is a can where the crimp, seam, or body leaks. This is caused by faulty seaming of the factory end (bottom) of the can; faulty seaming of the cannery (top) end of the can; faulty locking seam; pinholing by corrosion from the inside of the can or rusting from the outside; bursting from gas pressure developed in the can by bacterial decomposition; the formation of hydrogen gas through corrosion; or a physical rupture through rough handling. 63

"Pinholing" may result from either internal or external corrosion. Internal corrosion is the result of an acid product attacking the interior of a can that has been imperfectly coated with enamel or tin, or it may occur at the bottom where the tin plate has broken in forming or embossing. External corrosion and pinholing result when a can has become rusted by rain or sweating. Canned foods which are stored within a few miles of the sea are particularly susceptible to external corrosion. If you notice any of the above defects in canned items, notify your supervisor immediately.

PERISHABLE. Perishable foods require refrigeration of one kind or another. Failure to provide proper storage temperatures result in spoilage. Included under the heading of perishable susbistence are fresh, frozen, or lightly cured meats; milk, butter, and certain other dairy products; poultry and eggs; frozen fish and other seafoods; and all fresh and fresh frozen fruits and vegetables.

When perishable food items are unloaded at your facility they should be in the same condition as when they are procured. Generally, you can determine their condition by the following factors:

General condition--indicated by desirable characteristics such as freshness, ripeness, plumpness, juiciness, tenderness, and free from damage.

Color--typical of the particular food item being inspected.

Odor--suggesting the condition of the product.

Flavor--characteristic of an item in prime condition.

Appearance--closely associated with quality; however, a good appearance does not always signify good quality.

Failure to provide proper storage at proper temperatures results in spoilage from wilting, softening, discoloration, molding, rotting, sliming, and souring. Weight and nutritional losses also occur when food is not stored properly.

The proper use of facilities and the adherence to the recommended procedures, in addition to preventing food spoilage, will go a long way toward insuring the continued high value and quality of food.

The temperature chart (figure 1) will show the different temperatures for perishable food items. Also, in the following paragraphs the various refrigerated storage facilities will be described.

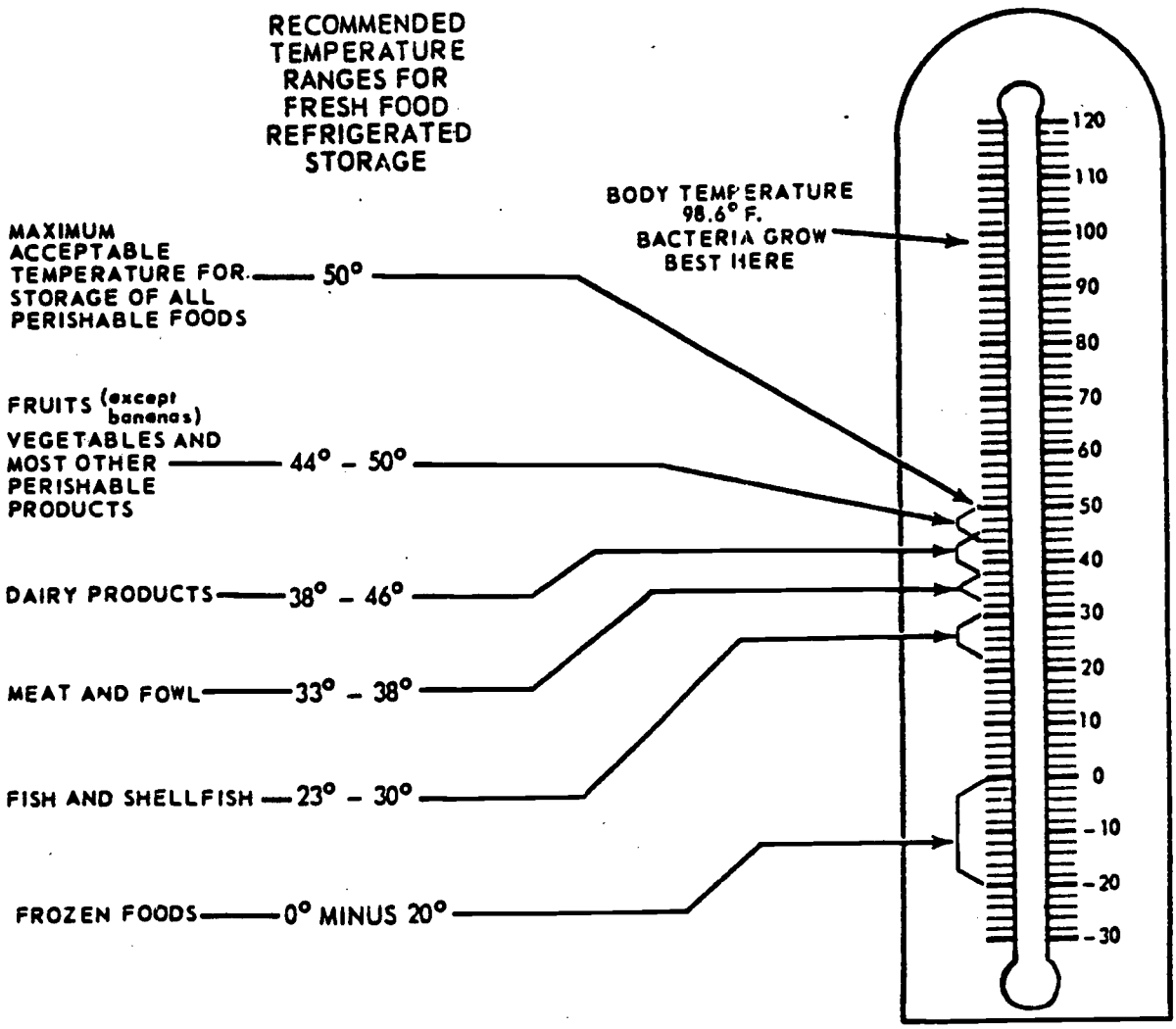

Figure 1 Recommended temperature ranges for fresh food refrigerated storage.

The freezer room or cabinet is intended primarily as a means of maintaining the frozen state of subsistence. Among the frozen foods requiring freezer storage which may be issued to food service facilities are meat and meat products, commercially frozen milk, poultry, fish and other seafood products, packaged fruits and vegetables, and fruit juices.

The chill room or chill box should be maintained at a temperature of just below the freezing point. If the temperature falls too low, slow freezing action starts that can affect the quality of the contents. If the temperature should be permitted to rise above the freezing point, bacterial action may start. This causes rapid deterioration of some of the contents. You can see that the temperature of the chill room must be carefully controlled and that temperature fluctuations must be held to a minimum.

The temperature of the chill room is ideal for the storage of fresh meat and meat products, fresh poultry, smoked or salted ham or bacon, and frozen meat and meat products that are ready to be defrosted.

When smoked meats are to be placed in the chill room they should be separately wrapped or packaged. If not, their smoky odor may penetrate the other food.

The egg and dairy products room is used for the storage of shell eggs, dried eggs, fresh and dried milk, butter, oleomargarine, lard and lard substitutes, fresh yeast, and various types of processed cheeses. One important fact to remember is that most dairy products will absorb the flavor of other products stored close by. This is the main reason why fruits, vegetables, and other items are not stored in the same box.

Eggs delivered from refrigerated trucks that are left in a warm room will "sweat" and the wet cardboard will affect the flavor of the eggs. Wet crates will cause eggs to become moldy, so they should be transferred to dry containers if cases become wet. Eggs can also be spoiled by freezing and have even been damaged by storage near refrigerated pipes. They deteriorate very rapidly if subjected to heat, causing the yolk to break easily and the egg white to become watery.

Cheeses and butter products that are left uncovered will rapidly become rancid. If they are accidently frozen, texture and flavor will become unsatisfactory.

The rotation of stock is very important. The policy of "first in, first out" applies to all forms of subsistence. This is to say that all old stock is to be used before new stock is broken open. A system should be set up so that all storeroom personnel are aware of what is old and what is new. One way is to date all supplies that come into the storeroom. Another is to place all new items to the rear of the old items.

Storage Layout and Arrangement

Food service facilities are normally furnished with adequate storage space and facilities and when properly used will largely insure against the deterioration of subsistence supplies. Storerooms should be arranged so that supplies on hand the longest are issued or used first.

LAYOUT OF STOREROOM. A subsistence storeroom or warehouse includes the following features:

1. Adequate loading and unloading facilities.

2. Sufficient ceiling height for stacking packaged supplies.

3. Sufficient shelving, bins, and lockers.

4. Adequate floor space.

Refrigeration Techniques for the Storeroom

The refrigeration process is used to remove heat from a storage area. When properly controlled, a refrigeration system can be adjusted to maintain any desired temperature and humidity. Refrigeration within food service is generally divided two ways: freezer and cooler or chill box.

When using refrigerated space, you can be assured of satisfactory results if you follow the rules listed below:

1. Store food loosely.

2. Store meats away from walls, coils, and other meats.

3. Cover nonpackaged foods.

4. Place new stock in back of old stock.

5. Clean the area frequently.

6. Defrost before one fourth inch of frost accumulates.

7. Open the door only when necessary and avoid over crowding.

Sanitation Requirements for the Storeroom

All storage space including refrigeration units should be kept clean, orderly, and as dry as possible. Space used for dry storage should be cleaned as frequently as required and refrigeration space should be cleaned daily.

SUBSISTENCE CONTROL

All subsistence received in the dining halls must be accounted for one way or another. The following forms are used to control the inventory of all foodstuff in the dining halls.

Format of AF Form 147, Field Ration Dining Hall Stock Record

AF Form 147 is used to control all subsistence supplies received from the commissary, meat plant, central pastry kitchen, vendors, or other sources. All items are posted on the AF Form 147 regardless of when they are used. As you learned in previous instructions, you receive rations on AF Form 287 from the commissary and upon receipt, they are posted to AF Form 147.

MODIFICATIONS

Pages 8-13 of this publication has (have) been deleted in adapting this material for inclusion in the "Trial Implementation of a Model System to Provide Military Curriculum Materials for Use in Vocational and Technical Education." Deleted material involves extensive use of military forms, procedures, systems, etc. and was not considered appropriate for use in vocational and technical education.

QUESTIONS

Answer the following questions in the spaces provided.

1. What are the two types of inspections you can conduct upon receipt of subsistence supplies? _____

2. What are the types of storage in the dining hall? _____

_____

3. When conducting condition inspection of dry subsistence such as flour, sugar, and cereals, we must be especially alert for what signs? _____

_____

_____

4. What foods make up the bulk of nonperishable subsistence received in the dining halls? _____

_____

_____

5. What are the requirements for a dry storage area? _____

_____

_____

_____

_____

6. Name the six most common types of can spoilage? _____

_____

_____

7. What is the primary purpose of the freezer? _____

_____

_____

8. What is meant by "first in, first out"? _____

_____

9. Refrigeration space should be cleaned how often? _____

_____

10. List three rules of refrigeration techniques. _____

_____

_____

_____

11. When subsistence is received in the dining hall storeroom, it is recorded on what form? _____

12. When is column D on AF Form 147 used? _____

_____

13. The DD Form 160 is used for what purpose? _____

_____

14. Listed below are nine food items. Describe the correct procedures for storing these items.

Oven Roast - 30 lb.	Orange Juice - 36 cn.
Bacon Sliced - 20 lb.	Potatoes Gran. - 24 cn.
Fish Portions - 10 lb.	Peas Sweet - 24 #10 cn.
Lettuce Fresh - 35 lb.	Corn Whole Grain - 24 cn.
Cabbage Fresh - 30 lb.	

1. _____

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2. _____

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3. _____

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8. _____

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9. _____

_____

Cook Course
Lowry Air Force Base, Colorado

SW 3ABR62230-I-7
July 1974

NUTRITION

OBJECTIVES

a. Given a list of nutrients, identify the function of each nutrient.

b. Describe the nutritional losses that occur during food preparation and list the preventive measures used to prevent such losses.

INTRODUCTION

The efficiency of any military organization depends largely upon the strength, vigor, and alertness of its personnel. The Air Force recognizes the fact that the diet has an important influence on physical condition and mental attitude. Wholesome nutritious food in the proper amount contributes siginificantly both to a healthy body and a healthy mind. This unit of instruction is designed to give you the background knowledge needed to prepare nutritious meals for the men and women of the Air Force.

IMFORMATION

NUTRITIONAL VALUES

Nutrition is the science of providing the body with the proper food in the proper amounts to maintain health and prevent disease. If a person does not receive the proper foods in the proper amounts, his efficiency is reduced and it will be more difficult for him to recover from wounds or illness. In the proper amounts means that he receives neither too little nor too much. For example, an oversupply of fat in the diet can cause obesity or hardening of the arteries; an undersupply can cause mental dullness or recurring hunger. Obesity can also be caused when the body receives more carbohydrates than is needed to supply the body with energy. On the other hand, if the body does not receive a sufficient amount of carbohydrates to supply the energy needed, a person loses weight. A man or woman whose diet does not include enough proteins will be in poor physical condition and his mental reactions will be slow. A lack of calcium and vitamin D in the diet causes tooth decay and weak bones; a lack of phosphorus causes bones to be brittle. A lack of calcium and vitamin K may cause the blood of a person who has been injured slow to coagulate (thicken). Wounds are less likely to heal when there is a lack of vitamin C. Too little iron in the diet can cause anemia. A person who does not get enough vitamin A in his diet may have night blindness or a person who does not receive enough vitamin B2 may experience blurred vision. These are only a few examples of the effects of poor nutrition.

To function smoothly the human body requires six basic nutritive substances or nutrients. They are carbohydrates, proteins, fats, minerals, vitamins, and water.

These nutrients are obtained from a wide variety of foods. A few foods consist of one nutrient only. Others combine several nutrients in varying amounts and few may contain varying amounts of all nutrients.

Let us discuss each nutrient separately so that you may learn its source and how it is used by the body.

CARBOHYDRATES. Carbohydrates are present in foods which are made up of carbon, hydrogen, and oxygen. They are mainly sugars and starches. Carbohydrates fall into the heat and energy producing food groups and constitutes the body's chief source of energy. Energy foods are used or burned by the body, not on the basis of the amount eaten, but on the demand of the muscles. If energy foods are eaten in excess, the surplus is stored in the body as fat. As we all know, too great a storage of fat handicaps normal activity.

There is no hard and fast rule governing the amount of carbohydrates required by the body. Man's energy requirement varies depending on body size, physical activity, age, and climatic conditions. During the digestive process both sugars and starches are converted into glucose (simple sugar) and absorbed into the bloodstream in this form.

Excessive consumption of carbohydrates not only produces fat but it also lessens the desire for foods containing other essential nutrients such as vitamins and minerals.

The heat or energy producing value of food is expressed in terms of calories. The calorie is a heat unit. When we say a certain quantity of a given food contains 100 calories we are saying in effect that the food when its nutrients are released to the body tissue will enable the body to exert an amount of energy corresponding to 100 calories.

The main sources of carbohydrates are sugars, table sugar, syrups, honey, molasses, and the sugars occurring naturally in fruits and vegetables. Starches, grains, cereals, and products made from grains and starchy vegetables.

PROTEINS. Proteins in some degree are present in all plants and animals. They are an indispensible part of every living cell of our bodies. Protein can be classified as the building material of the body since its nitrogen content is essential to the repair and maintenance of every living body cell. The human body, as a matter of fact, is approximately 18 percent protein. The hair, skin, nails, and muscle tissue are almost entirely protein. Proteins are broken down by digestive processes into simpler substances called amino acids.

Remember a good diet calls for protein to be supplied from both animal and vegetable sources to insure that all the essential amino acids are available to the body.

Protein cannot be stored in the body in quantity, it must be supplied daily. An insufficient supply causes the body to consume its small reserve and eventually its own tissue.

Sources of protein include milk, eggs, lean meat, fish, poultry, cheese, and in such vegetable products as soybeans, peanuts, and other legumes (peas and beans), cereals and cereal products are also good sources of protein.

FAT. Fat is primarily an energy producer but it also performs other functions. Fats are the most concentrated source of energy. On a pound for pound basis, fats contribute twice as much energy as carbohydrates.

Fats provide flavor and contributes a satisfying quality to the diet, serves as a carrier for the vitamins which dissolve in fat (A, D, E, and K), and supplies fatty acids that are needed by the body. Fat is more slowly digested than the other energy producers. When the body does not need fat for immediate energy, the fat is changed into fatty acids and stored for future needs.

The sources of fat are butter, cream, lard and lard substitutes, vegetable oils, and the fats of meat.

Other Classes of Nutrients

MINERALS. Vitamins and water are not sources of energy. Neither are they acted upon by the digestive juices as are proteins, fats, and carbohydrates. They are absorbed practically as they occur after being freed from foods during the digestive process.

Minerals contribute greatly to the growth and health of the teeth and bones. Together with vitamins, they serve as regulating substances and are considered essential to building and repair of the body.

The most important minerals are calcium, phosphorus, iron, copper, iodine, and salt.

CALCIUM. Calcium is used by the body to maintain the bones and teeth and also to aid in blood coagulation (clotting of the blood).

The sources of calcium are milk and milk products other than butter and cream. (Butter and cream have a very high fat content.)

PHOSPHORUS. Phosphorus builds bones, teeth, and aids in cell reproduction. It is so widely distributed in foods there is little chance of phosphorus deficiency.

Sources of phosphorus are milk products, meats, and whole grain.

IRON. Iron builds blood which transports oxygen through the body.

The sources of iron are lean meat, eggs, edible animal organs, (liver and heart) peas, beans, and green vegetables.

COPPER. The chief role of copper in the body is its action in the formation of hemoglobin (red coloring matter of the red blood cells).

The sources of copper are lean meats, eggs, edible animal organs, such as liver and heart, peas, beans, and green vegetables.

IODINE. Iodine regulates the metabolism (rate at which the body can make use of food). It is also an essential component of the thyroid hormone, a deficiency of which leads to the disorder of the thyroid gland known as a simple goiter.

The sources of iodine are iodized salt and seafood.

SALT. Salt regulates the loss of water by the body. It also relaxes stiff muscles.

Vitamins

Vitamins regulate the body processes. They are essential for normal growth and for the maintenance of health and life.

VITAMIN A. Vitamin A is needed for growth and for healthy eyes and skin. Sources of vitamin A are leafy green and yellow vegetables, sweet potatoes, tomatoes, milk, butter, eggs, and liver.

VITAMIN B1 (Thiamine). Vitamin B1 is needed for growth. It releases energy from starches and sugars and contributes to the normal functioning of the heart and muscles. Sources of vitamin B1 are leafy vegetables, meat, whole cereal, bread, eggs, and legumes.

VITAMIN B2 (Riboflavin). Vitamine B2 promotes health by helping the body cells to use oxygen. It also contributes to normal eyesight and growth. Sources of Vitamin B2 are eggs, milk, poultry, legumes, and leafy vegetables.

NIACIN. Niacin is necessary for growth. It aids in digestion and contributes to the health of the skin and nerves. Meat is the source of niacin.

VITAMIN C (Ascorbic Acid). Vitamin C helps build connective tissue and healthy gums, teeth, and bones. It also helps in the healing of wounds. Sources of vitamin C are citrus fruits, tomatoes, potatoes, and leafy green and yellow vegetables.

VITAMIN D. Vitamin D transports calcium and phosphorous to the bones and teeth; therefore it is needed for well-formed bones and teeth. Vitamin D is the only vitamin that is manufactured by the body. Sources of vitamin D are fish, milk, eggs, and leafy vegetables.

VITAMIN K. When vitamin K is absent from the body, excessive and prolonged bleeding may occur from insignificant wounds. Sources of vitamin K are leafy green vegetables, tomatoes, and liver.

Water

Water is essential to life. It is the vehicle for transporting food material to the body cells and the medium in which essential chemical change takes place. Water transports the water-soluable vitamins (B1, B2, C and Niacin). It helps to regulate the body temperature, to carry off the waste products, and to lubricate the bodies moving parts. The healthy adult body, depending on its size, contains between 37 and 53 quarts of water. This level is maintained by drinking, by water in food, and to some extent by water gained through the skin and lungs from humid atmospheres. When the intake of water is less than the output the body becomes dehydrated. Although water balance is no problem in temperate climates, it may become a real problem in very hot climates during times of strenuous activities.

NUTRITIONAL LOSSES AND PREVENTATIVE MEASURES

The Human Diet

It has been found that no single food is essential in the human diet since many foods may be substituted for one another. While some foods contribute many of the essentials for an adequate diet, a detailed study of the nutrients composition of various foods has shown that a certain similarity in composition exist within various foodstuffs. How then can we be sure that we are providing Air Force personnel with an adequate diet?

To insure that we provide nutritionally adequate diets, we should serve foods from each of the basic four food groups which are: (see figure 1)

I. Vegetables and fruits.
II. Milk and milk products.
III. Meat, fish, poultry, and eggs.
IV. Bread and cereal.

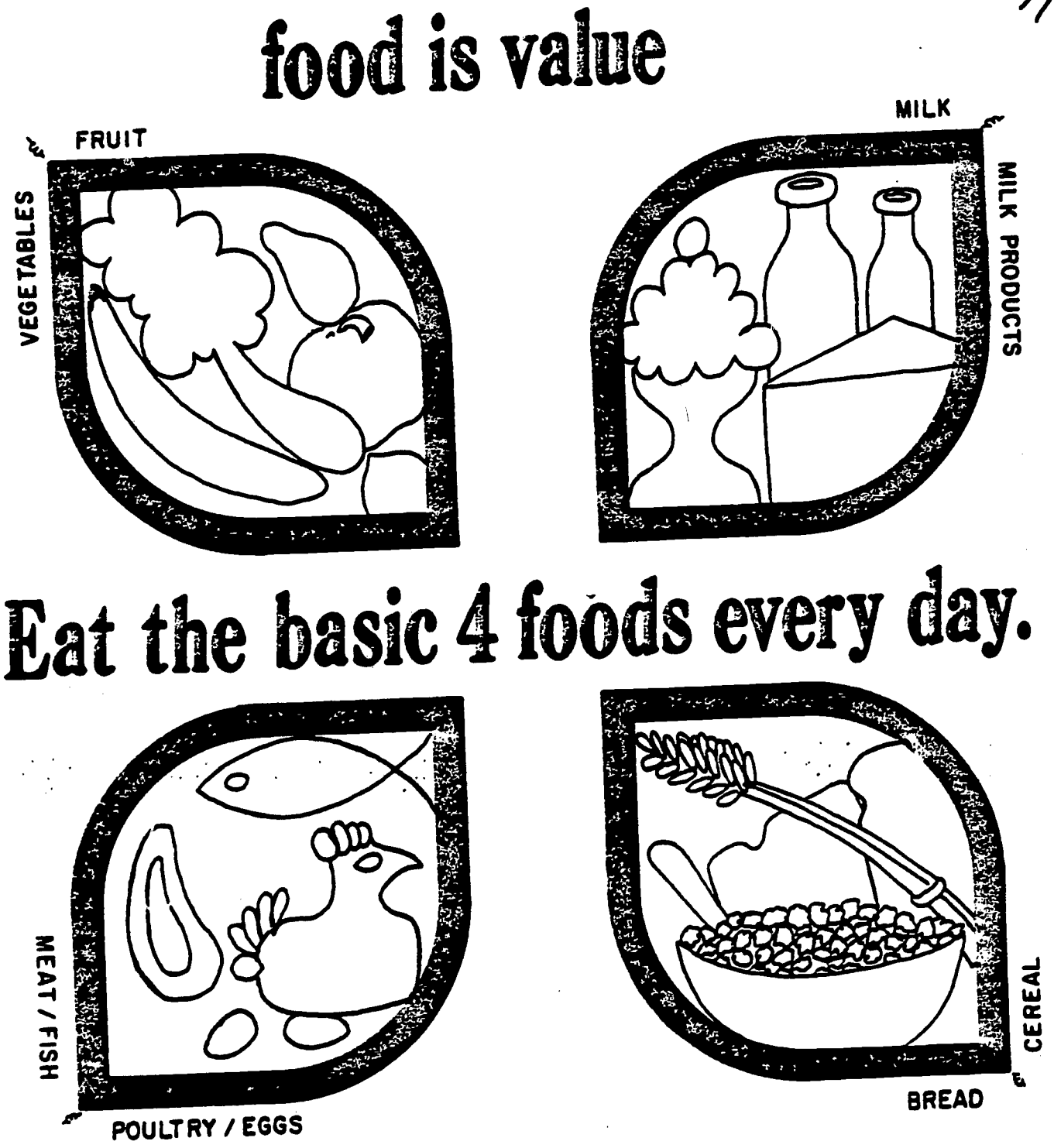

Figure 1. Nutritional Adequacy

Conservation of Nutrients

The nutritive value of cooked foods may differ greatly from that of uncooked foods. This is especially true as it applies to vitamin content since vitamins may be lost as a result of solubility, oxidation, heat, and light. These losses differ with the individual vitamins and foods and no single factor covers them all.

In the following paragraphs, we shall discuss the handling and cooking practices that cause food to lose their nutritive value.

Food tends to lose their vitamin A content when they are stored for a prolonged period under conditions of high temperature, when they are exposed to the air, and when they are cooked under intense heat.

Effects of Cooking and Preventative Measures

Since vitamin A is soluble in fat, foods that are rich in this vitamin should not be cooked in grease. Butter incidently should never be heated to a frying temperature. To do so results in the complete loss of vitamin A.

The conservation of minerals which are dissolved in water, and water-soluble vitamins is the greatest problem to the cook. Vegetables should be cooked for a short period of time and in as little water as possible. The cooking water from the vegetables should be saved and used in soups and gravies.

Under no circumstances should baking soda be added to green vegetables in an effort to brighten their color. Soda destroys the nutrients and also causes vegetables to have an unusual flavor. The cook must remember that although some of the essential nutrients cannot be completely lost by cooking, they will nevertheless be lost if the airman does not eat the food. For example, if the meat is tough and burned and the airmen leave much of it on their plates, they will not benefit from the protein, phosphorus, and vitamins in the meat. Generally, all meats are cooked at moderate temperatures because high temperatures tend to toughen meat and make it harder to digest. When meat is cooked in liquid, the liquid should never be allowed to boil because boiling toughens the meat, prolongs the cooking time, and destroys the flavor. Foods should not be fried at extremely high temperatures. If the cooking fat exceeds the smoking point, a substance called acrolein is formed. Acrolein irritates the stomach and can cause ulcers.

If the cook follows exactly the cooking times, the cooking temperatures, and other instructions contained in the recipe, he is most likely to prepare foods that the airmen will want to eat and the cook is less likely to destroy the nutritive value of the food.

QUESTIONS

1. List the six essential nutrients needed by the body?

2. Carbohydrates fall into what food group?

3. Name three sources of carbohydrates? (For each group)

Sugars

Starches

4. What is the result of excessive consumption of carbohydrates?

5. What is the function of protein in the body?

6. List four sources of protein?

7. Why must protein be supplied to the body daily?

8. Fat is primarily an energy producer, but it also performs other functions, name them.

9. List three nutrients that are not sources of energy.

10. List the most important minerals needed by the body.

11. Name four vitamins and list their bodily functions.

12. List the basic food groups.

13. List the four water-soluble vitamins.

14. Why is nutrition important?

Listed below are problems that concern conservation of nutrients. In each problem, describe:

1. Nutritional losses that would occur.

2. List preventative measures that would prevent such losses.

15. Heating butter to a frying temperature.

a. _____

_____

_____

_____

_____

b. _____

_____

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_____

_____

16. When food is stored at a prolonged period of time at high temperatures.

a. _____

_____

_____

_____

_____

b. _____

_____

_____

_____

_____

17. The addition of baking soda to green vegetables.

a. _____

_____

_____

_____

_____

b. _____

_____

_____

_____

18. In the following problem you are given a list of nutrients and a list of their functions. Match each nutrient with the correct function.

1. Carbohydates_____
2. Minerals_____
3. Vitamins_____
4. Proteins _____
5. Fats _____
6. Water _____

A. Transports soluble vitamins, also acts as a coolant.

B. Repairs and maintains body cells.

C. Most concentrated source of energy.

D. Main source of energy.

E. Regulates the body processes.

F. Contributes greatly to the growth and health of teeth and bones.

MODIFICATIONS

3ABR62230 -I- 8 of this publication has (have) been deleted in adapting this material for inclusion in the "Trial Implementation of a Model System to Provide Military Curriculum Materials for Use in Vocational and Technical Education." Deleted material involves extensive use of military forms, procedures, systems, etc. and was not considered appropriate for use in vocational and technical education.

MEAT IDENTIFICATION

OBJECTIVES

After today's lesson you will be able to identify and classify cuts of meat, poultry, and seafood items.

INTRODUCTION

To properly cook meat you must first learn to properly identify the categories of meat used within the dining hall. Those meats used within the Air Force dining halls at present are boneless beef, pork, veal, poultry, and seafood.

INFORMATION

CATEGORIES OF MEAT

Meat is the flesh of any animal used for food. In the broad use of the term this includes the flesh of fish, shellfish, poultry, and game as well as that of mammals. The common accepted usage of the word "meat" applies only to the edible parts of mammals raised for food.

BONELESS BEEF ISSUES

Definitions

Beef is the flesh of mature cattle at least one year old. The best beef is produced by steers under three years of age which are bred for meat producing purposes and subsist chiefly on a grain and grass diet.

This meat is usually graded by inspectors of the US Department of Agriculture.

CONFORMATION. Conformation refers to the general build, form, and shape of the carcass. Desirable conformation is a compact, thick, and meaty throughout. When viewed from the back, the carcass should be short in the hind shanks, thick and full in the rounds, wide and thick in the loins, thick in the ribs, smooth and meaty in the shoulders, and short in the neck. Best carcasses are not particularly deep in the shoulders, flank, and belly, but are full over the back, loins, and rounds. This should not be interpreted to mean that shallow bodies, high-flanked animals are desirable, but that excessive depth in the shoulder, brisket, and flank adds little to the value and may even detract. Angular or rangy breeds will not have good conformation, the grade is lowered, and the proportion of weight of the less desirable cuts in relation to the more desirable cuts increases.

FINISH. The second factor in determining grade refers to the thickness and distribution of fat inside and outside the carcass and in the flesh itself. The quality, color, and texture of fat is also important. Good care and feed result in good finish. Grain-fed animals will have a creamy white fat while grass-fed animals will have a yellowish fat. The color of beef fat will also vary according to the breed and age of the animal. Green grass and legumes contain a considerable quantity of carotene, a yellow fat-soluble substance. This carotene will color beef fat yellow. Individual cattle also differ in their ability to store carotene. As the animal ages, the fat usually contains more carotene. Ideal finish on animals is a smooth well distributed amount of white cream fat over the entire carcass. Excess fat indicates an animal has been heavily fed for too short or too long a time. Poorly bred stock respond less satisfactorily than better bred animals in taking finish. In the interior the finish should be smooth and not rippled. The interior finish should be thinner than the exterior. Excessive or blotchy fat reduces grade. Marbling of the flesh appears in animals having good finish.

QUALITY. Quality is the third factor affecting the grade. It refers to the color and appearance of the flesh, the amount of marbling, the smoothness, fineness, and evenness of grain. Good quality is indicated by a bright, clear color. The meat should be moist but not sticky. The flesh should be firm but still pliable. It should have a silky appearance. The bones should indicate youth. Food feathering or finish of fat in the interior and good deposits of fat on the flank usually indicate good quality.

Grades of Beef

PRIME. Prime beef carcasses are thick-fleshed, blocky, and compact. The fat covering is firm, brittle, and somewhat waxy. The cut surface of the muscle tissue has a smooth appearance with a pronounced intermingling of fat (marbling) with the lean.

CHOICE. Choice grade beef carcasses are moderately thick-fleshed, blocky, and compact. The fat covering of the carcass varies depending on the age of the animal, from slightly thin in young animals to moderately thick in mature animals. The marbling (fat streaks) in the rib eye varies from moderate to abundant and the color of the meat ranges from light red to slightly dark red.

GOOD. Good grade beef carcasses are slightly thick-fleshed, slightly compact, and blocky in appearance. The fat covering may be somewhat soft or slightly oily and varies from thin in young animals to thick in more mature animals. It has a moderate amount of marbling in the rib eye. The color of the meat varies from light to dark red and in some cases may be two-toned or slightly shady. This grade of beef is used extensively by the Air Force, although quantities of choice grade beef are purchased when warranted by the supply and price.

COMMERCIAL. Commercial grade beef carcasses vary over a wide range of conformation, finish, and quality. Young animals so graded are angular and slightly thin-fleshed; mature animals are slightly thick-fleshed but irregular in contour. Fat coverings vary from thin to slightly thick and may be soft and watery. Little or no marbling exists.

Composition of Beef

From a cooking standpoint, composition is a combination of muscle, connective tissue, fat, and bone.

MUSCLE. Muscle is that lean red portion of meat displayed when carcass cuts are made. Muscles are of two types, locomotive and supporting. Locomotive muscles are much stronger and less tender than supporting muscles due to being continually in use when the animal walks, runs, or grazes. These locomotive muscles are found chiefly in the leg, hip, and neck of the animal. Supporting muscles which are usually soft and tender are confined mainly to the back and rump. From these supporting muscles are cut the choice steaks and roasts.

CONNECTIVE TISSUE. The connective tissue surrounds the muscle fibers, binds them into bundles, and makes up the tendons and ligaments. There are two types of ligaments, the yellow and white. The yellow ligament called the "backstrap" is not made tender by cooking. The total amount of connective tissue in a cut of meat depends upon the exercise which the muscles have received and the age of the animal. The amount and character of the connective tissues are also related to the tenderness of the cut.

FAT. All meat contains fat to a greater or lesser degree. It is deposited between muscles, between bundles of fibers, between cells, or within the cell. Some fat is stored in quantities prominently displayed around the heart, kidneys, and the external covering of the carcass. Some of it is distributed in very minute particles throughout the muscles or lean. This marbling increases flavor and helps retain moisture in the muscles while the meat is cooking.

Portion Cuts

The military presently uses fabricated boneless frozen beef consisting of five categories. The five categories are: grill steak, oven roast, swiss steak, pot roast, and ground beef. All cuts can be compared with the charts on beef cuts.(See figures 1, 2, and 3).

PORK ISSUES

Grades of Pork

Grades used for pork are unlike those used for beef and veal. Pork is graded as choice, good, medium, and cull. At this time we will only be concerned with choice and good pork.

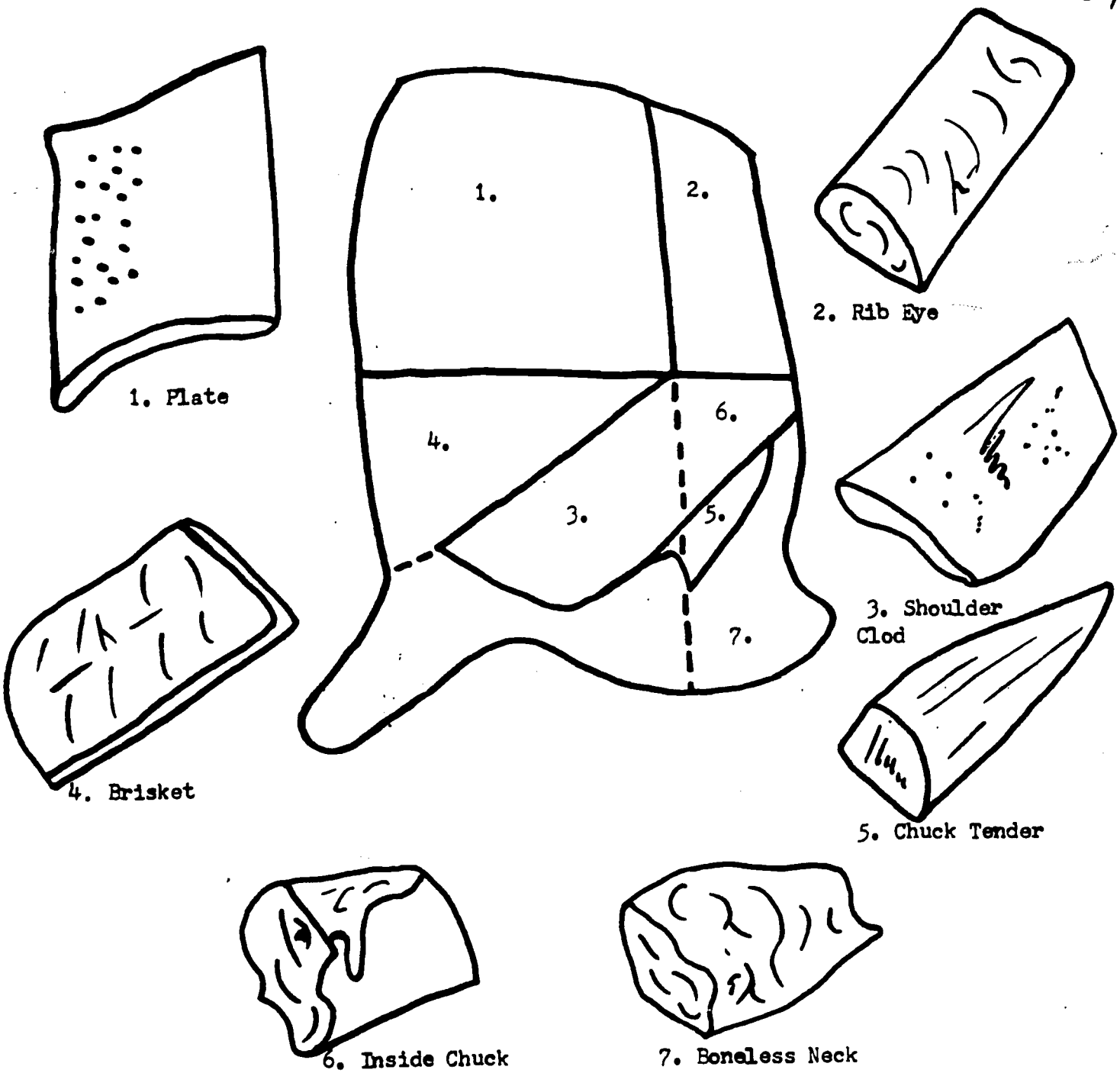


Figure 1. Beef Forequarter and Boneless Cuts

SW 3ABR62230-I-9

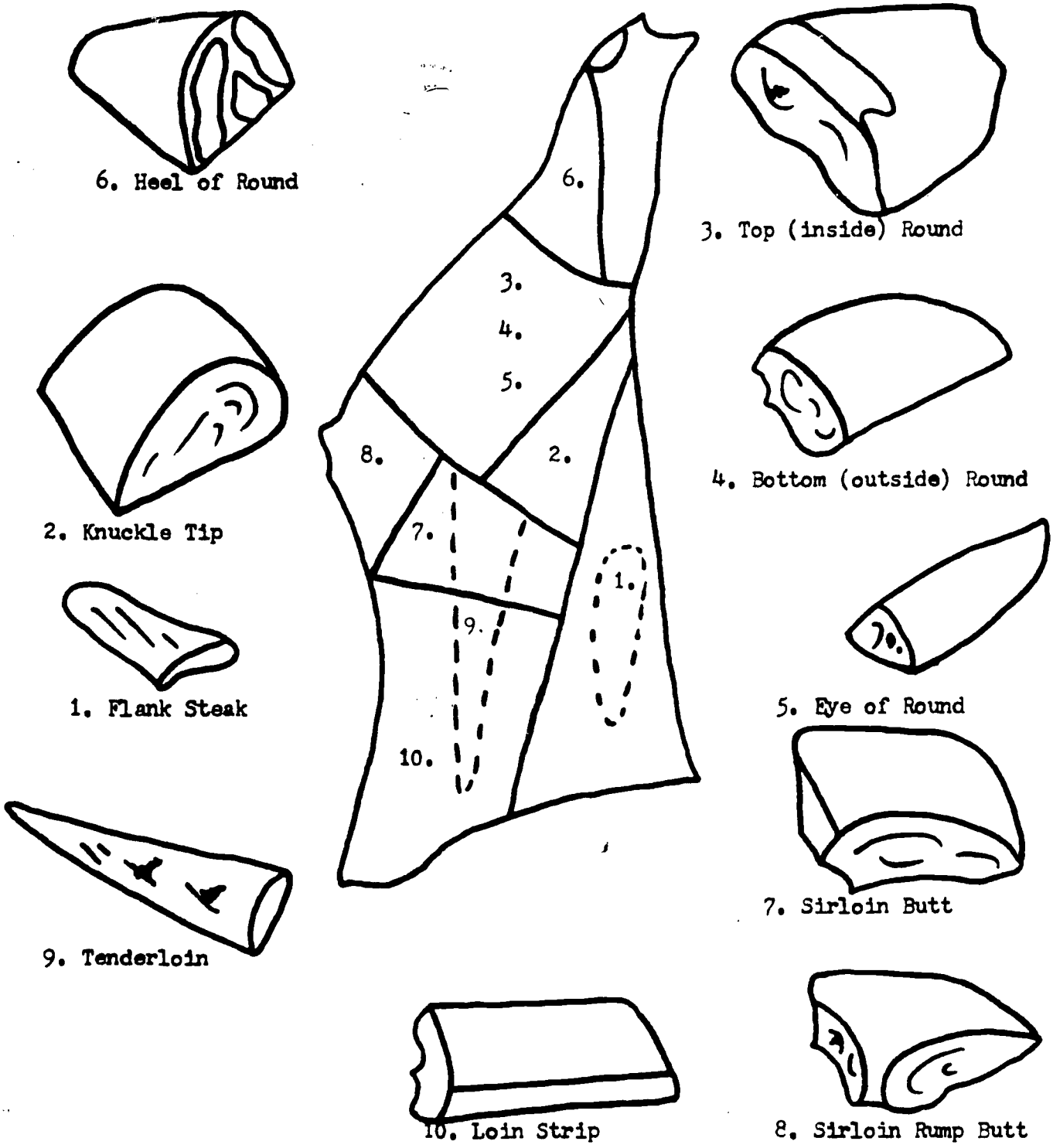


Figure 2. Beef Hindquarter and Boneless Cuts

SW 3ABR62230-I-9

5

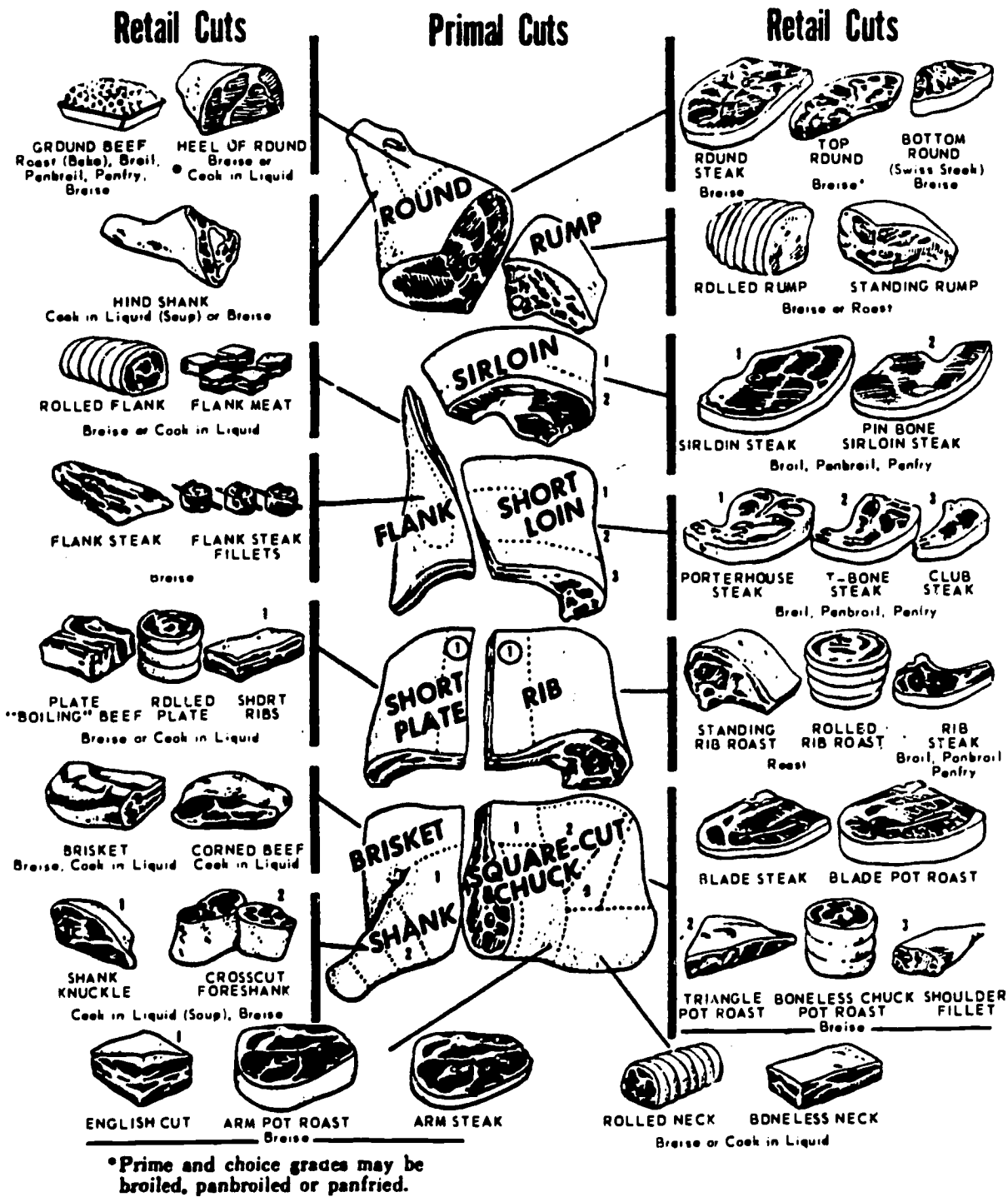


Figure 3. Beef Cuts, Wholesale and Retail

SW 3ABR62230-I-9

6

Choice is divided into two classes, choice meat type and choice fat type. As in beef, the Air Force buys only good grade pork except when supply and price warrant buying choice pork are as follows:

CHOICE MEAT TYPE. These hogs are well finished and firm. Their snouts are moderately firm, straight, and of medium length. Necks are short with no crest on top. Shoulders are light and smooth, compact on top, and no wider than the rest of back. Back and loins are strong and full, of good length, and with a slight arch from neck to tail. Sides or bellies are long, smooth, and filled out even with the shoulders and loins. The underline will show no flabbiness or pauchiness. It will be trim, neat, and full at the flank. Rumps are the same width as backs, dropping gradually from loin to tail. Hams are firm and well rounded, no flabbiness on inside facing or on hocks. This type carries a large percentage of lean cuts representing a high degree of meatiness.

CHOICE FAT TYPE. This type possesses a high degree of conformation, finish, and quality. The body of a hog of this grade is moderately long, wide, and deep, being uniform in width from shoulders to hams, inclusive. The top line is arched. The underline and side lines are straight. The animal carries a large porportion of fat to lean. The head is small, the jowls smooth. The back is moderately long, wide, and full. Sides are moderately long, deep, thick, and plump. External fat is thick, smooth, and very firm.

GOOD GRADE. These hogs are slightly lacking in finish but do have sufficient finish, quality, and conformation to indicate the production of good standard cuts. There is a good proportion of lean to fat. Hams are of good conformation and plumpness. External fat is firm and of good proportions throughout. Skin is free from wrinkles and reasonably smooth and clean. Lower classes are lacking in finish, quality, and firmness, so as to indicate a fair to poor proportion of standard cuts and usually a very low yield of total carcass value. Since practically all pork is divided into cuts (loins, shoulders, hams, spareribs, etc.) at the packing plants, we realize that this popular meat (ranging from 6 to 12 months in age), like veal, can be depended upon to be tender. In general, quality pork produced in the United States is quite uniform.

Composition of Pork

The composition of pork is determined by two factors, color and quality. The color of young pork is grayish pink changing to a delicate rose in older animals. The quality of pork is relatively firm and fine grained and free from excess moisture. The lean portion is well marbled and covered with firm white fat.

Portion Cuts

Pork does not require much processing. However, cuts to be used as roast should be boned and trimmed. Excess fat should be removed, rendered, and blended with other fats. Shank bones should be removed from the hams and shoulder before cooking. If hams weigh more than 12 pounds, they should be split and cooked into pieces to allow heat penetration.

Portion cuts of pork consist of the boneless loin roast coming from the ham portion of the hindquarter of the pork. The compressed prefabricated pork chop comes from the loin. Spareribs come from the side. Bacon also comes from the side. All cuts can be compared with the charts on pork cuts. (See figures 4 and 5).

VEAL ISSUES

Grade of Veal

The term veal is generally applied to the flesh of calves up to one year of age. High quality veal can be judged by the color and texture of the flesh and condition of the bone.

Composition of Veal

High quality veal is light grayish pink in color. The meat has a fine grain, fairly firm, and velvety texture. Veal, being the flesh of a young animal, has very little fat which is clear, firm, and white. Due to its youth there is no marbling (intermingling of fat) in the muscle tissue.

Portion Cuts

Veal may be cut into fore and hind saddles by cutting between the 12th and 13th ribs. This leaves the hind side with two unsplit hind legs and loins. The forequarter contains double ribs, breasts, shoulders, and shanks. The legs of veal contains the rump. Frequently the rump is removed and steaks cut from the round. These steaks may be boneless and are called veal cutlets. A center-cut roast from the leg results when the shank and rump are removed. The heel of the round is used for stew or ground meat. Sirloin steaks or roast may come from the loin end and chops from the remainder of the loin. If a portion of the kidney remains in a loin chop, the chop is called a kidney chop. The rib may make rib roast or rib chops. A blade roast, arm roast, or blade or arm steak may be obtained from the shoulder. The shank and other trimmings and the breast may be cut up for diced or ground meat. Sometimes the breast is boned and used as a roast filled with stuffing. Riblets may be cut from the breast. See figures 6 and 7 for all veal cuts.

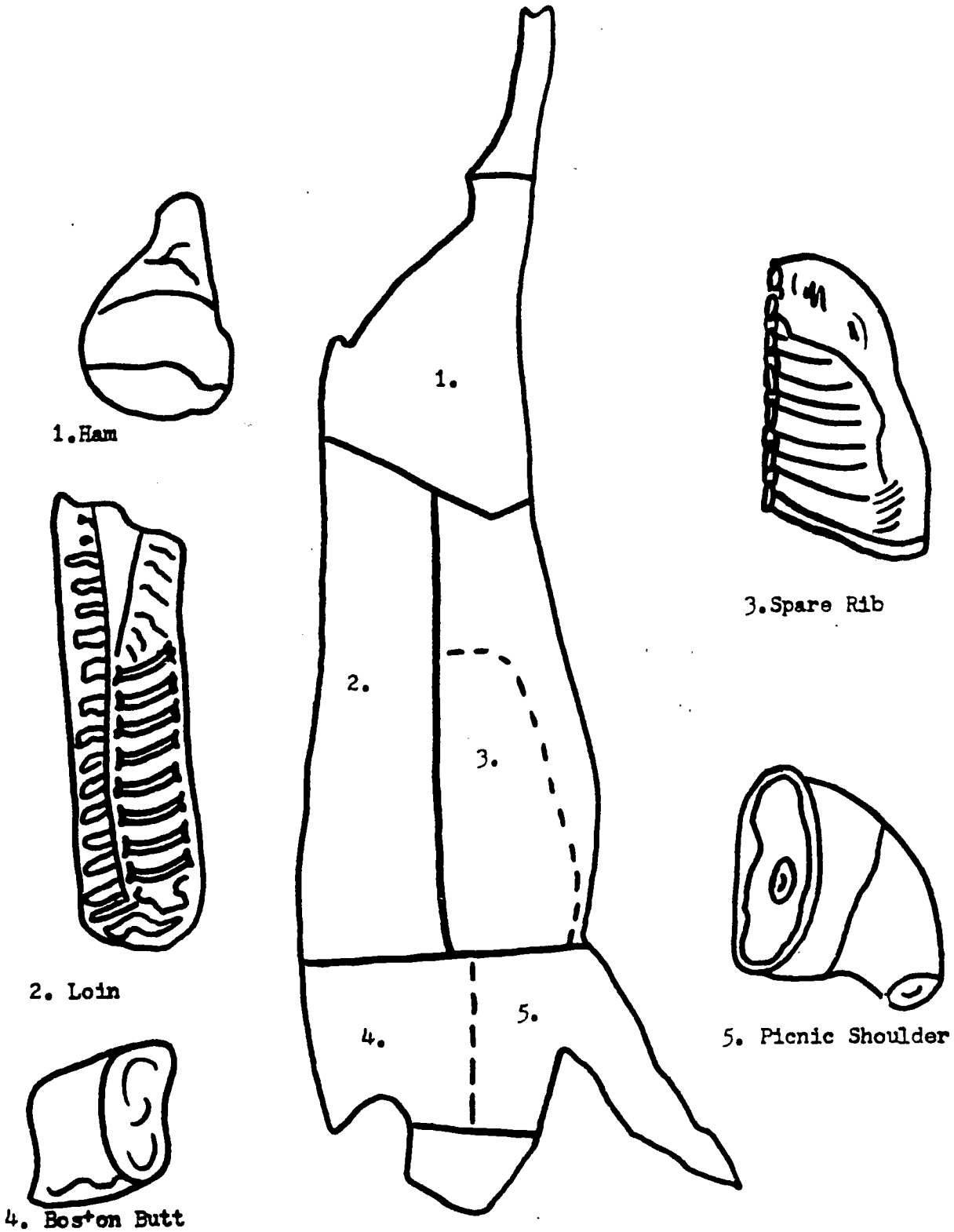


Figure 4. Pork Carcass Chart and Primal Cuts

SW 3ABR62230-I-9

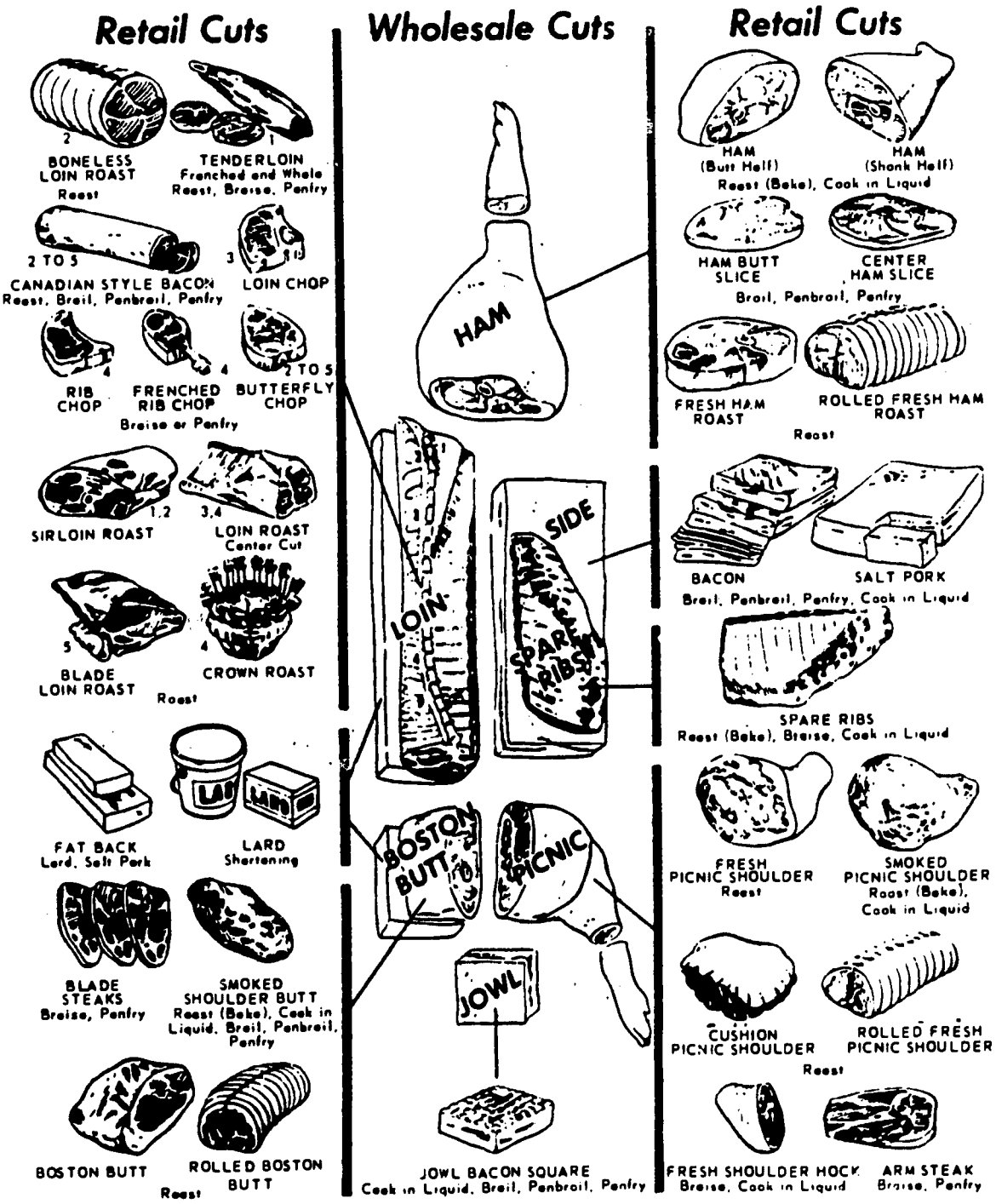


Figure 5. Pork Cuts, Wholesale and Retail

SW 3ABR62230-I-9

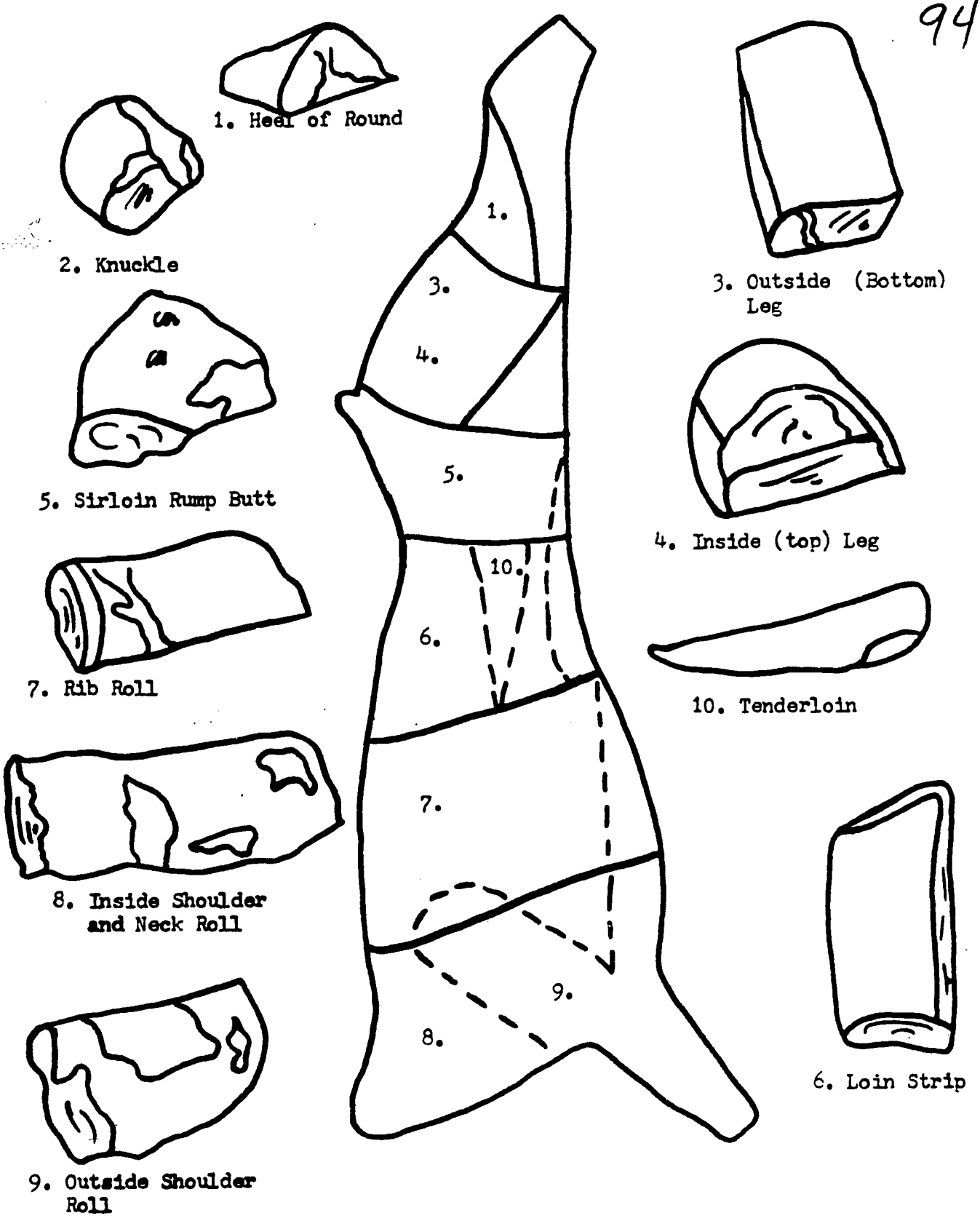


Figure 6. Veal Carcass and Boneless Cuts

SW 3ABR62230-I-9

11

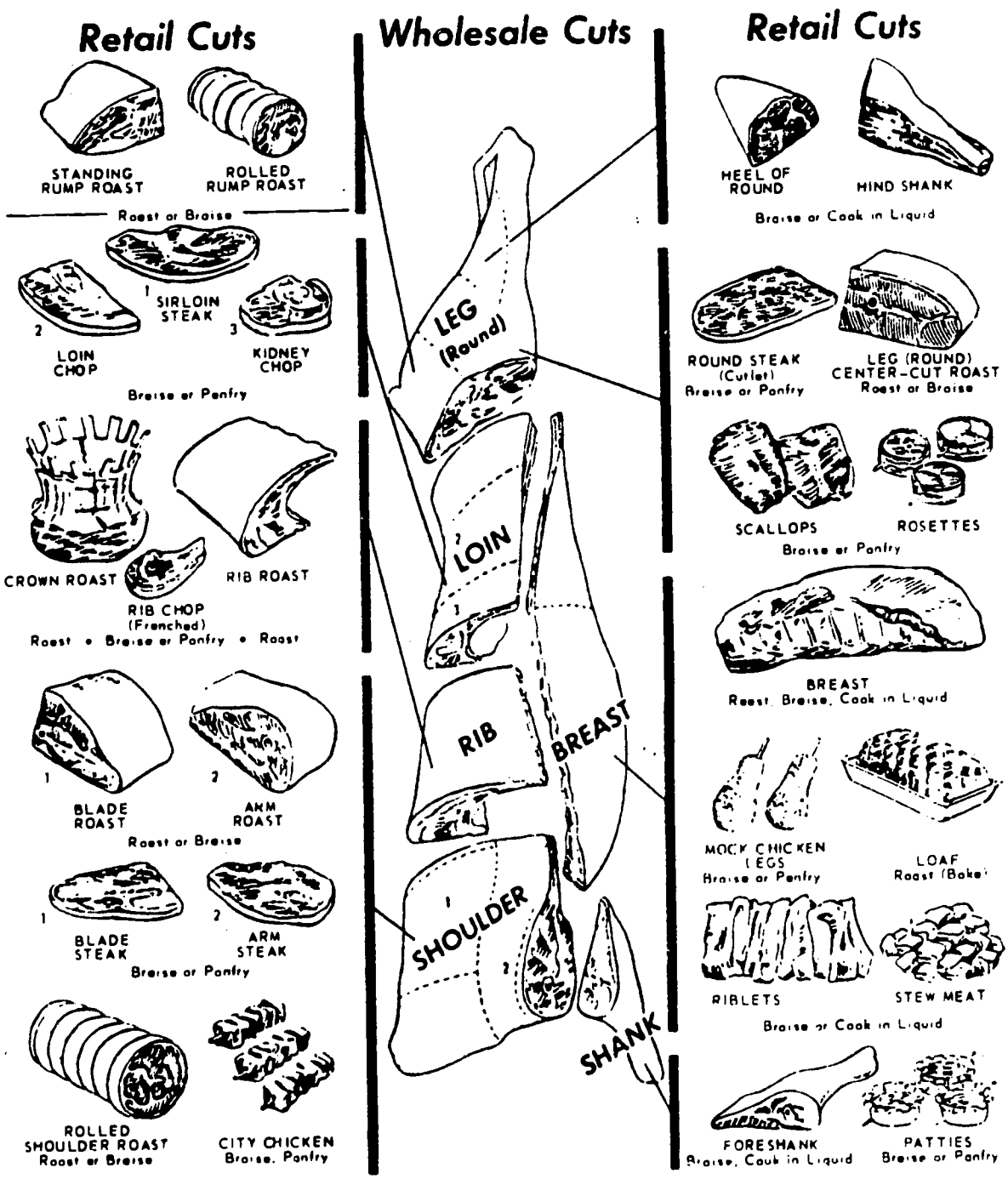


Figure 7. Veal Cuts, Wholesale and Retail

POULTRY ISSUES

Types of Poultry

Within the Air Force the two types of poultry used are chicken and turkey. The chicken can further be placed into three types. They are:

BROILER. The broiler is a young chicken usually under twelve weeks of age and can be of either sex. It is tender-meated with soft, pliable, smooth-textured skin, and pliable breast bone cartilage. (See figure 8).

FRYER. The fryer is a young chicken twelve to sixteen weeks of age and can be of either sex. The meat is tender with soft, pliable, smooth-textured skin, and flexible breast bone cartilage. Both the broiler and fryer are classed about the same.

FOWL. A fowl is mature female bird usually more than ten months of age with less tender flesh. It has a nonflexible breastbone.

There are two types of turkey, which are:

TOM TURKEY. Tom turkey is a male usually under eight months of age that is tender meated with soft, pliable, smooth texture skin. Due to its sex, a young tom turkey is usually larger and heavier than a female bird of the same age.

ROLLED TURKEY. The rolled turkey is meat of a tom turkey when the meat has been removed from the bone.

Cuts

The cuts for chicken are two legs, two thighs, two wings, two breasts, and a neck. The back can be split in half making ten pieces. See figure 9. Turkey is usually prepared as received and cut after it has been cooked.

Processing

Both chicken and turkey are usually issued to the dining hall ready to cook (RTC) which means that the birds have been bled, picked, and eviscerated. (Eviscerated means that the feet and inedible organs have been removed.) The giblets have been washed, trimmed, wrapped, and placed back into the body cavity. The neck has been removed and in most cases wrapped with the giblets. In today's dining halls, further processing has been done to some chicken and turkey in that some chicken is received pre-cut and giblets removed, thus having less waste. Turkey is also received raw, rolled, and string tied, thus having the same effects as chicken cut-up.

Figure 8. Determining Age of Chicken

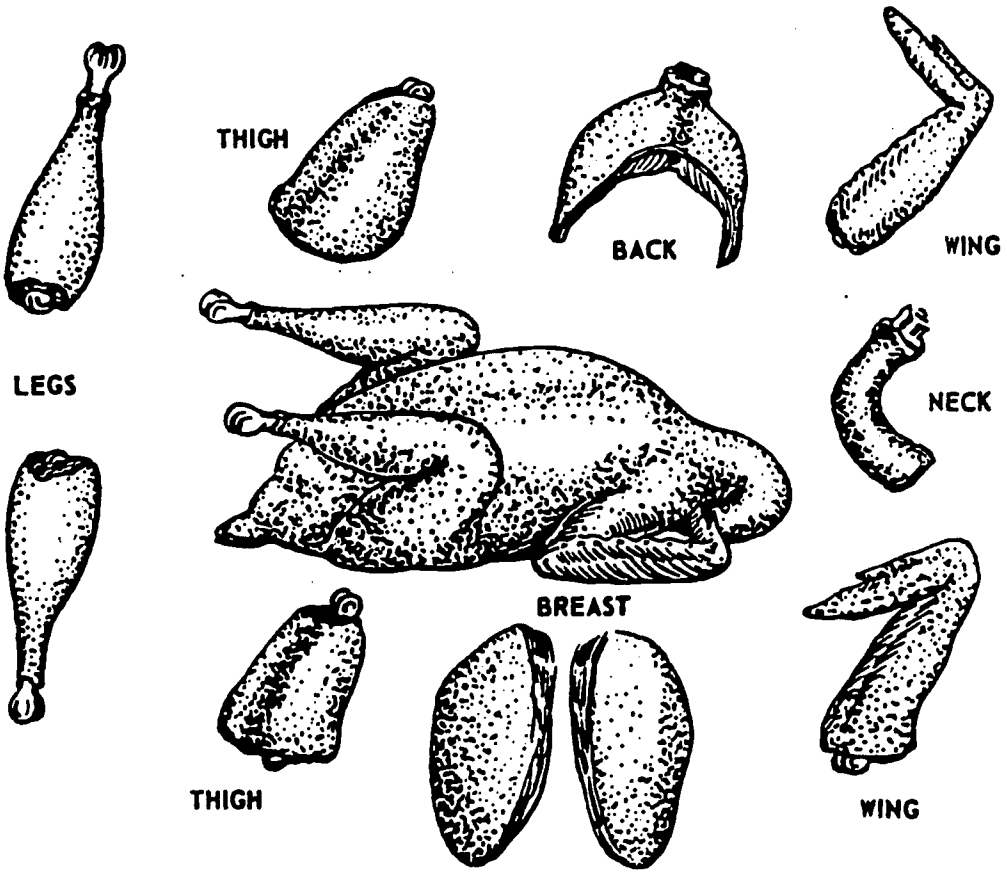


Figure 9. Chicken Whole and Cuts for Frying

Classes

Seafood is classed as finfish and shellfish. A finfish is an animal that has a spine, gills, and in most cases scales. Trout, bass, salmon, and catfish are common examples. Shellfish are edible, spineless animals protected by a shell. Shrimp, oyster, clams, and lobsters are prominent members of the shellfish family.

Condition

According to their degree of freshness, fish may be classed as fresh, stale, and putrid. Needless to say, only fresh fish should be served in Air Force dining halls.

STALE FISH. The meat has a dull appearance. The body surface might be slimy or abnormally dry. The body feels boney and bends easily. Impressions are easily made and remain.

PUTRID FISH. The meat of putrid fish has lost all brightness and luster. The color is dull and lifeless and the meat may be covered with slime containing a very offensive odor.

Processing

Fish are processed into the cuts or form best suited for the cooking method desired. The three standard fish processing methods are termed: Steaked, filleted, and fish portions (preprocessed).

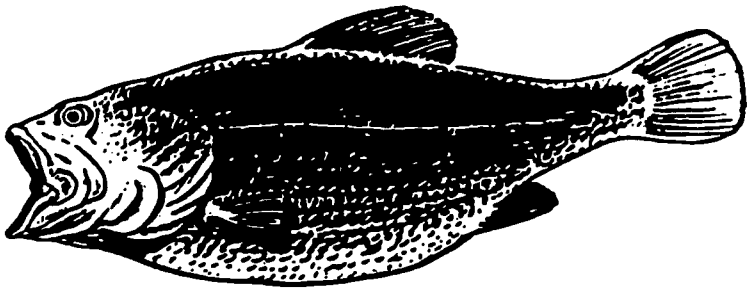
STEAKED FISH. Steaked fish are cross-sections of large dressed fish. See figure 10. Each steak is one-half inch thick or more and equal to one or more serving portions. The cross section of the backbone is the middle of most steaks. Usually it is the only bone in the steak.

FILLETED FISH. Fillets are the meaty sides of fish. Butterfly fillets consist of two single fillets held together by the uncut belly of the fish. See figure 10.

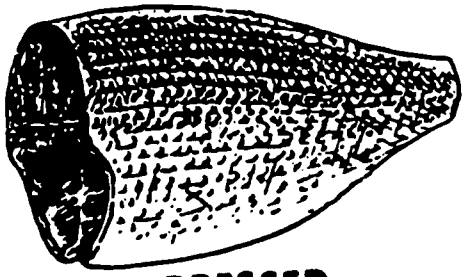
FISH PORTIONS. Fish portions are cuts of fish that have been compressed and breaded, then frozen. It may come in varying sizes.

Condition

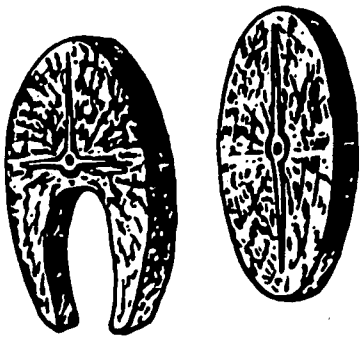
There are two classes of shellfish, bivalves (mollusks) and crustaceans. The bivalves are oysters, scallops, clams, and mussels, while crustaceans are lobsters, shrimp, and crabs. At present, the Air Force has been purchasing only fresh frozen and canned frozen shellfish.



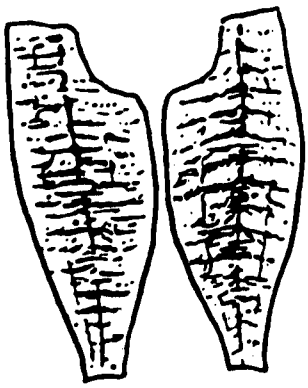
FISH WHOLE



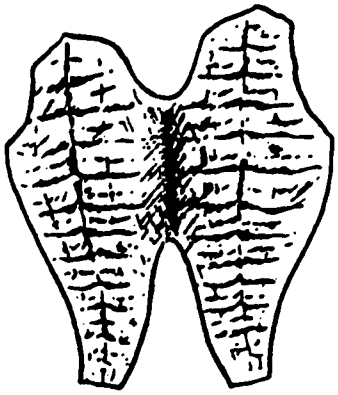
FISH DRESSED



FISH STEAKS



FISH FILLET



FISH BUTTERFLY

Figure 10. Cuts of Fish

Processing

As stated earlier, the processing of shell fish falls into one of three methods: Quick frozen in shell (shrimp), frozen breaded ready to cook (breaded shrimp), and canned frozen (oysters).

QUESTIONS

1. What are the categories of meat used in the dining hall? _____

_____

2. Give the definition of beef. _____

_____

_____

3. There are three deciding factors in the grading of meat. Name and give a brief explanation of each. _____

4. What are the three factors in meat composition? _____

5. What are the five categories of fabricated boneless beef? _____

6. What are the four grades of pork? What grades are used most by Air Force dining halls? _____

7. Explain the term "choice meat type" as it applies to pork.

8. What should be done if a ham weighs more than 12 pounds?

9. The ham portion of the hindquarter of pork produces what cut of meat? _____

10. Air Force dining halls are concerned with what grade of veal?

11. Explain the composition of veal.

12. The leg of veal contains the rump. What cut comes from the rump?

13. What cuts are used to make up ground veal?

14. What are the two types of poultry used in the dining hall?

15. Describe the following:

Broiler

Fryer

Fowl

16. What is a "tom" turkey?

17. Define the term "eviscerated poultry."

18. Define the two classes of seafood and give an example of each.

19. Define the term putrid fish. _____

20. Name and explain the three processing methods for finfish.

21. What are the three methods of processing shellfish? _____

22. Listed are cuts of meat that come from the forequarter and hindquarter of beef. In the space provided, indicate with the letter "F" or "H" the quarter of beef the cuts are from.

_____ Rib Eye

_____ Plate

_____ Eye of Round

_____ Heel of Round

____ Shoulder Clod

____ Top (inside) Round

____ Sirloin Rump Butt

____ Brisket

____ Tenderloin

____ Loin Strip

____ Chuck Tender

____ Inside Chuck

____ Sirloin Butt

____ Boneless Neck

____ Flank Steak

____ Knuckle Tip

____ Bottom (outside) Round

APPROVAL OFFICE AND DATE	INSTRUCTOR
TLGTC-1/Smith/1 Apr 75	
COURSE NUMBER	**COURSE TITLE**
3ABR62230/3AQR62231	Cook
BLOCK NUMBER	**BLOCK TITLE**
II	Role of the Cook

LESSON TITLE
Equipment

LESSON DURATION

CLASSROOM/Laboratory	Complementary	TOTAL
12	4	16

POI REFERENCE

PAGE NUMBER	PAGE DATE	PARAGRAPH
7 and 8	1 April 1975	2a, b, c

STS REFERENCE

NUMBER	DATE
622X0 10b, 5d, 5f, 10a, 11	21 November 1974

SUPERVISOR APPROVAL

SIGNATURE	DATE	SIGNATURE	DATE

PRECLASS PREPARATION

EQUIPMENT LOCATED IN LABORATORY	EQUIPMENT FROM SUPPLY	CLASSIFIED MATERIAL	GRAPHIC AIDS AND UNCLASSIFIED MATERIAL
Overhead Projector 16mm Projector 35mm Projector	NA	NA	SW 3ABR62230-II-2 AFM 146-8 Transparencies-Equip. CSSP-II-1, FLC 11-0016, FLC 11-0017, FLC 11-0015, FLC 11-0014, FLC 4-0093

CRITERION OBJECTIVES AND TEACHING STEPS

2. Equipment

a. Given AFM 146-8 and a list of fixed equipment, identify the operation and maintenance procedure for each item.
b. Given AFM 146-8 and a list of portable equipment, identify the operation and maintenance procedure for each item.
c. Given practical problems concerning equipment safety, determine precautions that have been violated.

(Teaching steps are listed in Part II)

LP 3AER62230-II-2

Introduction (minutes)

Attention

Review

Overview

Motivation

Transition

Body (hours minutes)

PRESENTATION

2. Equipment

a. Given AFM 146-8 and a list of fixed equipment, identify the operation and maintenance procedure for each item

(1) Fixed equipment

(a) Dishwasher

APPLICATION

Have students complete exercises in SWB. 124

EVALUATION

Check SWB exercises for accuracy 2

(b) Steamtable

APPLICATION

Have students complete exercises in SWB.

EVALUATION

Check SWB exercises for accuracy

(c) Steam-jacketed Kettle

APPLICATION

Have students complete exercises in SWB.

EVALUATION

Check SWB exercises for correctness

(d) Range

APPLICATION

Have students complete SWB exercises.

EVALUATION

Check SWB exercises for correctness

(e) Vertical Steamer

APPLICATION

Have students complete SWB exercises.

EVALUATION

Check SWB exercises for correctness

(f) Meat Slicing Machine (semi-automatic)

APPLICATION

Have students complete SWB exercise

EVALUATION

Check students SWB exercises for correctness

(g) Deep fat fryer

123

APPLICATION

Have students complete exercise in SWB.

EVALUATION

Check SWB exercises for correctness

(h) Griddle

(i) Sectional or Stack Ovens

APPLICATION

Have students complete SWB exercises

EVALUATION

Check students SWB for accuracy

(j) Vertical food mixing machine

APPLICATION

Have students complete exercises in SWB

EVALUATION

Check students SWB exercises for accuracy

(k) Automatic Coffee Maker

APPLICATION

Have students complete SWB exercises

EVALUATION

Check students SWB exercises for correctness

(1) Vegetable peeler

APPLICATION

Have students complete SWB exercises

EVALUATION

Check SWB exercises for correctness

(m) Tilt grill

APPLICATION

Have students complete SWB exercises.

EVALUATION

Check students SWB for accuracy

(n) Toasters

APPLICATION

Have students complete SWB exercises

EVALUATION

Check SWB exercises for correctness

(c) Refrigeration equipment

APPLICATION

Have students complete SWB exercises

EVALUATION

Check SWB exercises for accuracy

(p) Meat tenderizer

APPLICATION

Have students complete SWB exercises

EVALUATION

Check SWB exercises for correctness

(q) Vegetable chopper

APPLICATION

Have students complete SWB exercises

EVALUATION

Check students SWB for correctness

b. Given AFM 146-8 and a list of portable equipment, identify the operation and maintenance for each item.

136

(1) Portable Equipment

(a) Hand tools

APPLICATION

Have students complete SWB exercises

EVALUATION

Check SWB exercises for correctness

c. Given practical problems concerning equipment safety, determine precautions that have been violated.

APPLICATION

Have students complete SWB exercises

EVALUATION

Check SWB exercises for correctness

LP 3ABR62230-II-2

Conclusion (minutes)

Summary

Remotivation

Assignment

Closure

LESSON PLAN (Part I, General)

APPROVAL OFFICE AND DATE	INSTRUCTOR
TLGTC-1/Smith/1 Apr 75	
COURSE NUMBER: 3ABR62230/3AQR62231	COURSE TITLE: Cook
BLOCK NUMBER: II	BLOCK TITLE: Role of the Cook

LESSON TITLE: Cooking Terms, Seasoning Agents, and Weights and Measurements

LESSON DURATION

CLASSROOM/Laboratory	Complementary	TOTAL
6	2	8

POI REFERENCE

PAGE NUMBER	PAGE DATE	PARAGRAPH
8	1 April 1975	3a, b

STS REFERENCE

NUMBER	DATE
622XO 4a(1), 6e	21 November 1974

SUPERVISOR APPROVAL

SIGNATURE	DATE	SIGNATURE	DATE

PRECLASS PREPARATION

EQUIPMENT LOCATED IN LABORATORY	EQUIPMENT FROM SUPPLY	CLASSIFIED MATERIAL	GRAPHIC AIDS AND UNCLASSIFIED MATERIAL
Overhead Projectors 35mm Projector 16mm Projector	NA	NA	SW 3ABR62230-II-3 AFM 146-7,AFM 146-12 Transparencies-Cook Terms,Seas Agts & Weight & Measurements CSSP-II-2,Cooking Trm FLC 21-0057, CSSP-II-3, Herbs and Spices

CRITERION OBJECTIVES AND TEACHING STEPS

3. Cooking Terms, Seasoning Agents, and Weights and Measurements

a. Given a list of cooking terms and definitions, match the term with the definition.
b. Given a list of food items and seasoning agents, match the agent with the food item.

(Teaching steps are listed in Part II)

ATC FORM AUG 72 770

GPO: 1972 770-366/23

Introduction (minutes)

Attention

Review

Overview

Motivation

Transition

Body (hours minutes)

PRESENTATION

3. Cooking Terms, Seasoning Agents, and Weights and Measurements

a. Given a list of cooking terms and definitions, match the term with the definition.

(1) Cooking terms

(a) Definitions

APPLICATION

Have students complete SWB exercises

EVALUATION

Check SWB exercises for correctness

b. Given a list of food items and seasoning agents, match the agent with the food item.

(1) Seasoning agents

141

(a) Herbs and Spices

(b) Common spices and some of their uses	
(c) Use of common herbs	
(d) Seasoning hints	

(2) Weights and Measures

(a) Symbols for measurements

(b) Table of common measurements used in food preparation

(c) Approximate number of cups or units in a pound of common foods

143

(d) Standard measuring techniques

APPLICATION

Have students complete SWB exercises

EVALUATION

Check SWB exercises for correctness

LP 3ABR62230-II-3

Conclusion (minutes)

Summary

Remotivation

Assignment

Closure

LESSON PLAN (Part I, General)

APPROVAL OFFICE AND DATE	INSTRUCTOR
TLGTC-1 /Smith/1 Apr 75	
COURSE NUMBER	**COURSE TITLE**
3ABR62230/3AQR62231	Cook
BLOCK NUMBER	**BLOCK TITLE**
II	Role of the Cook

LESSON TITLE
Principles of Food Preparation

LESSON DURATION

CLASSROOM/Laboratory	Complementary	TOTAL
28	10	38

POI REFERENCE

PAGE NUMBER	PAGE DATE	PARAGRAPH
9	1 April 1975	4a, b, c, d, e, f

STS REFERENCE

NUMBER	DATE
622XO 6e, 7a, 7b, 3c(1),(2),6d,7c	21 November 1974

SUPERVISOR APPROVAL

SIGNATURE	DATE	SIGNATURE	DATE

PRECLASS PREPARATION

EQUIPMENT LOCATED IN LABORATORY	EQUIPMENT FROM SUPPLY	CLASSIFIED MATERIAL	GRAPHIC AIDS AND UNCLASSIFIED MATERIAL
Overhead Projector 16mm Projector	NA	NA	SW 3ABR62230-II-4 AFM 146-7,AFM 146-12 AFM 163-8 Transparencies-Food Preparation TF 6333,TF 10-3999, TF 5922, SFP 1662, TF 6194, SFP 1344(over)

CRITERION OBJECTIVES AND TEACHING STEPS

4. Principles of Food Preparation

a. Identify the two methods of meat cookery and describe the variations of each method.
b. Describe the preparation and submission of the Consumer Level Quality Audit Program (COLEQUAP)
c. Identify categories of vegetables and describe the method of preparation for each category.
d. Identify the techniques used in the preparation of quick breads.
e. List the rules used when preparing a tossed salad.
f. Describe methods used for the preparation of miscellaneous food items.

(Teaching steps are listed in Part II)

LP 3ABR62230-II-4

Introduction (minutes)

Attention

Review

Overview

Motivation

Transition

Body (hours minutes)

PRESENTATION

4. Principles of Food Preparation

a. Identify the two methods of meat cookery and describe the variations of each method.

(1) Meat cookery

(a) Cooking meat

(b) Handling Meat

140

(c) Dry heat cooking method	
(d) Moist heat cooking method	
(e) Preparation of individual meat items	

APPLICATION

Have students complete exercises in SWB

EVALUATION

Check SWB for correctness

(2) Seafood Cookery

(a) Finfish

(b) Shellfish

b. Describe the preparation and submission of the Consumer Level Quality Audit Program (COLEQUAP)

(1) Purpose of COLEQUAP

(a) Preparation

(b) Submission

APPLICATION

Have students complete exercises in SWB

EVALUATION

Check exercises for correctness

c. Identify categories of vegetables and describe the method of preparation for each category.

(1) Vegetables

(2) Fruits

APPLICATION

Have students complete exercises in SWB

EVALUATION

Check exercises for correctness

d. Identify the techniques used in the preparation of quick breads.

(1) Preparation of quick breads

(a) Dough Method

(b) Mixing

(c) Batter method

(d) Mixing

(e) Baking

APPLICATION

Have students complete exercises in SWB

EVALUATION

Check SWB exercises for correctness

(2) Preparation of baking products

(a) Cake

(b) Cookies

(c) Pies

APPLICATION

Have students complete exercises in SWB

EVALUATION

Check SWB exercises for correctness

e. List the rules used when preparing a tossed salad.

(1) Preparation of Salads and Desserts

(a) Salad preparation

(b) Desserts

APPLICATION

Have students complete exercises in SWB

EVALUATION

Check SWB exercises for correctness

154

f. Describe methods for the preparation of miscellaneous food items.

(1) Miscellaneous food items

(a) Soups

(b) Sauces and Gravies

(c) Cereals

(d) Eggs

(e) Dairy products

(f) Beverages

(g) Sandwiches

(h) Leftovers

156

APPLICATION

Have students complete exercises in SWB

EVALUATION

Check exercises in SWB for correctness

(2) Carving of meats and poultry

(a) Carving Meat

(b) Carving poultry

(3) Garnishing of prepared foods

APPLICATION

Have students complete exercises in SWB

EVALUATION

Check exercises in SWB for correctness

Conclusion (minutes)

Summary

Remotivation

Assignment

Closure

LESSON PLAN (Part I, General)

APPROVAL OFFICE AND DATE	INSTRUCTOR
TLGTC-1 /Smith/1 Apr 75	
COURSE NUMBER	**COURSE TITLE**
3ABR62230 /3AQR62231	Cook
BLOCK NUMBER	**BLOCK TITLE**
II	Role of the Cook

LESSON TITLE
Progressive Cookery and Waste Prevention

LESSON DURATION

CLASSROOM /Laboratory	Complementary	TOTAL
6	2	8

POI REFERENCE

PAGE NUMBER	PAGE DATE	PARAGRAPH
10	1 April 1975	5a, b

STS REFERENCE

NUMBER	DATE
622X0 7a, 7b	21 November 1974

SUPERVISOR APPROVAL

SIGNATURE	DATE	SIGNATURE	DATE

PRECLASS PREPARATION

EQUIPMENT LOCATED IN LABORATORY	EQUIPMENT FROM SUPPLY	CLASSIFIED MATERIAL	GRAPHIC AIDS AND UNCLASSIFIED MATERIAL
Overhead Projector 16mm Projector	NA	NA	SW 3ABR62230-II-5 AFM 146-7,AFM 163-8 Transparencies-Progr. Cook & Waste Prevent TF 1-5117DU FLC 16-0180

CRITERION OBJECTIVES AND TEACHING STEPS

5. Progressive Cookery and Waste Prevention

   a. Describe the procedure used in progressive cookery.
   b. Identify the major causes of food waste.

   (Teaching steps are listed in Part II)

☆ GPO: 1972 779-399/23

Introduction (minutes)

Attention

Review

Overview

Motivation

Transition

Body (hours minutes)

5. Progressive Cookery and Waste Prevention

a. Describe the procedure used in progressive cookery.

(1) Progressive cookery

b. Identify the major causes of food waste

(1) Major causes of food waste

(a) Causes of waste

(b) Procedures for waste prevention

APPLICATION

Have students complete exercises in SWB

EVALUATION

Check exercises in SWB for accuracy

LP 3AER62230-II-5

Conclusion (minutes)

Summary

Remotivation

Assignment

Closure

Department of Logistics Training

Cook Course

BLOCK II

9-5

Role of The Cook

(Part I)

April 1975

LOWRY TECHNICAL TRAINING CENTER

PURPOSE OF STUDY GUIDES, WORKBOOKS, AND HANDOUTS

Study Guides, Workbooks, and Handouts are training publications authorized by Air Training Command (ATC) for student use in ATC courses.

The STUDY GUIDE (SG) presents the information you need to complete the unit of instruction, or makes assignments for you to read in other publications which contain the required information.

The WORKBOOK (WB) contains work procedures designed to help you achieve the learning objectives of the unit of instruction. Knowledge acquired from using the study guide will help you perform the missions or exercises, solve the problems, or answer questions presented in the workbook.

The STUDY GUIDE AND WORKBOOK (SW) contains both SG and WB material under one cover. The two training publications are combined when the WB is not designed for you to write in, or when both SG and WB are issued for you to keep.

The HANDOUT (HO) contains supplementary training materials in the form of flow charts, block diagrams, printouts, case problems, tables, forms, charts, and similar materials.

Training publications are designed for ATC course use only. They are updated as necessary for training purposes, but are NOT to be used on the job as authoritative references in preference to Technical Orders or other official publications.

TABLE OF CONTENTS

MODIFICATIONS

Pages 1-6 of this publication has (have) been deleted in adapting this material for inclusion in the "Trial Implementation of a Model System to Provide Military Curriculum Materials for Use in Vocational and Technical Education." Deleted material involves extensive use of military forms, procedures, systems, etc. and was not considered appropriate for use in vocational and technical education.

EQUIPMENT

OBJECTIVES

a. Given AFM 146-8 and a list of fixed equipment, identify the operation and maintenance procedures for each item.

b. Given AFM 146-8 and a list of portable equipment, identify the operation and maintenance procedures for each item.

c. Given practical problems concerning equipment safety, determine precautions that have been violated.

INTRODUCTION

In this chapter we will discuss portable and fixed equipment; to include maintenance procedures and safety precautions in the use of equipment. Your supervisor or trainer will furnish you with the necessary equipment operating procedures. Operating procedures may be in the form of a Job Proficiency Guide (JPG), a designated section in AFM 146-8, Operation and First Echelon Maintenance of Food Service Equipment, or the manufacturers instructions that are used as an operational check-list. It is to your advantage that you learn the step by step procedures from the very beginning because most of your training will be conducted on this basis. Never attempt to use a piece of equipment until you are basically familiar with its operating characteristics. When in doubt seek the aid of your supervisor or trainer.

INFORMATION

FIXED EQUIPMENT

Fixed equipment is usually power operated and installed more or less on a permanent basis. It includes such items as steam tables, dishwashers, ranges, and steam jacketed kettles.

Dishwasher

There are two types of dishwashers used in the Air Force dining halls. One is equipped with a single tank and the other a double tank. In this lesson we will discuss the double tank dishwasher because it is most commonly used in the dining hall.

The dish washing machine is used to wash and rinse eating utensils in a quick, efficient, and sanitary manner. It is located in a room or area specifically designated for dishwashing. This room or area should be well ventilated, properly drained, and free from interference of other activities.

Figure 1 gives you an illustration of a double tank dishwashing machine. Before operation, close the drain valve, fill the tanks with water, turn on the heating unit, fill the machine with the proper amount of dishwashing compound, and start the machine. After dishes have been prewashed and placed in the dish racks, feed the dish racks into the machine for washing and rinsing. Remove the dishes from the rack and turn off the machine and heat. Close the final rinse valve and drain the tanks before cleaning.

The dishwashing machine must be cleaned after each meal; however, when the machine is operated on a continuous basis it must be stopped every 1 1/2 hours; drain and rinse the wash tank and add completely new wash solution. To clean the machine follow these steps:

1. Assemble all equipment and supplies.
2. Scrub the interior of the dishwashing machine.
3. Wash the exterior of the dishwashing machine.
4. Rinse and dry exterior of dishwashing machine.
5. Clean and dry spray tubes.
6. Wash scrap trays.
7. Wash overflow cap.

Before operating the machine again, you should check it for cleanliness and see that it is put together properly. When operating the machine, keep your hands away from all moving parts, keep water away from the motor and other electrical equipment, be sure the water is at the proper level in the tanks before turning on the heat, and always turn off the heat before draining the tanks.

EXERCISE

1. What is the purpose of the dishwashing machine? _____

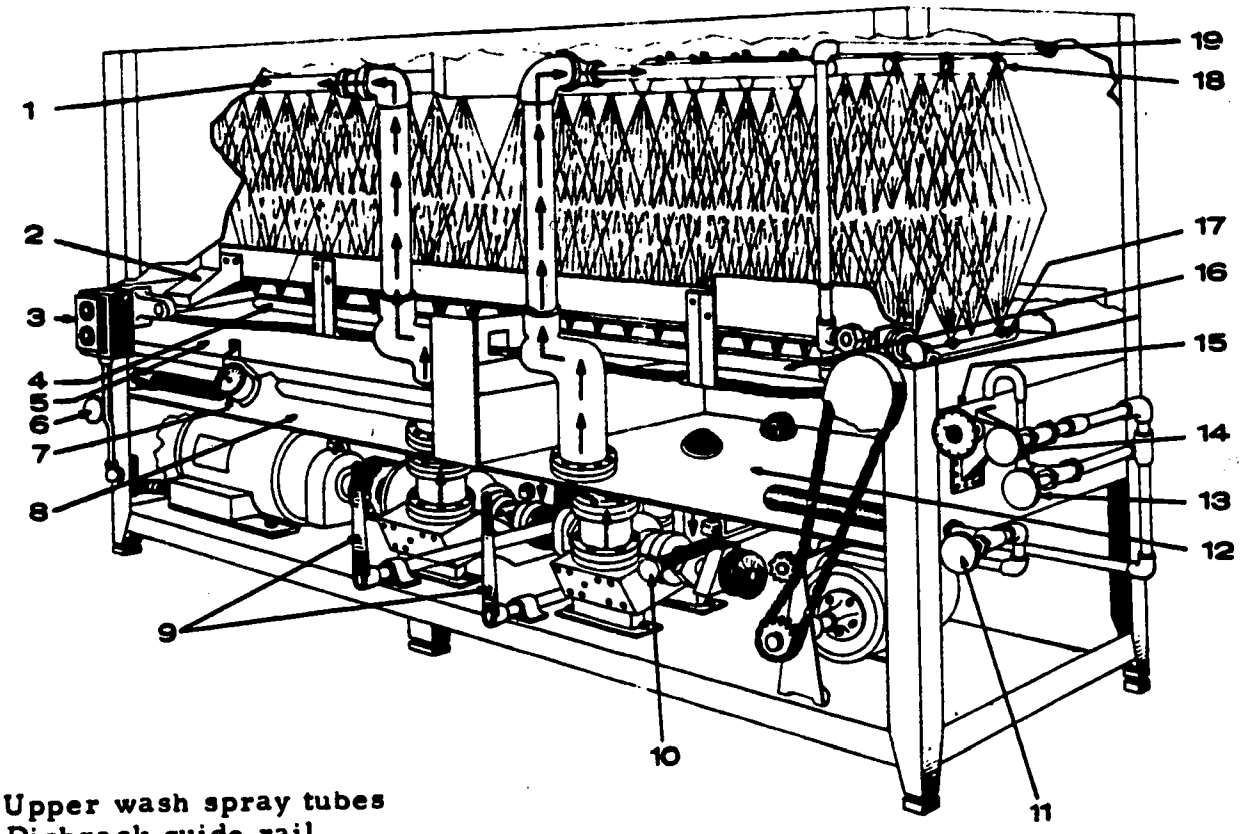
_____

_____

2. When the dishwashing machine is operated over a long period of time, it should be shut down every _____ hours.

3. List the safety precautions to be followed when operating the dishwashing machine.

_____

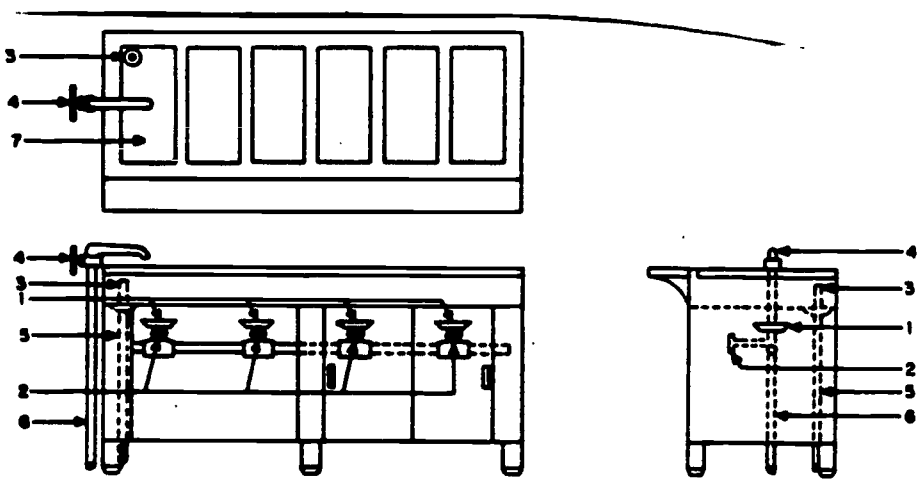


1. Upper wash spray tubes
2. Dishrack guide rail
3. Electrical control box
4. Lower wash spray tubes
5. Scrap trays
6. Wash tank steam injector valve (steam heated)
7. Wash water thermometer
8. Wash tank (wash tank hot water valve not shown; located on wash end of machine)
9. Tank drain levers
10. Conveyor speed control lever
11. Rinse tank steam injector valve (steam heated)
12. Rinse tank
13. Rinse tank hot water valve
14. Rinse tank thermometer
15. Final rinse hot water
16. Lower rinse spray tubes
17. Lower final rinse spray tubes
18. Upper rinse spray tubes
19. Upper final rinse spray tubes

Note: Heating units may be gas, steam, or electric.

Figure 1. Dishwashing Machine (Double Interior)

Steam Table



1. Gas burner
2. Gas cocks
3. Overflow pipe
4. Water faucet
5. Water drain
6. Water pipe
7. Insert opening

Figure 2. Steam Table, Gas Heated

The steam table is designed to keep food at the proper temperature for short periods of time during serving and for attractive display of food.

In heating the steam table, three types of heating systems are needed. They are steam, gas, and electric. A typical example of the gas operated steam table is shown in Figure 2.

To operate the steam table, fill with water and heat the water to the desired temperature (180° temperature is recommended). Higher temperatures dry food more rapidly and waste both fuel and food.

After serving the food turn off the heating element, drain the water, and clean the inside of the compartment of all food particles. Use a scrub brush with cleaning powders and hot water to remove these food particles. Check for cleanliness, then refill the compartment with water and check for leakage before serving meals.

Failure to observe safety precautions can be a dangerous practice. You may injure yourself or the equipment. Some of the precautions to follow are:

1. Inspect joints, connections, seams, and heating units for leaks before each use.

2. Never turn on the heating unit until the compartment is partially filled with water.

3. Keep the floor around the steam table dry and free of grease to prevent accidents.

EXERCISE

1. What are the procedures in operating the steam table? _____

_____

_____

_____

_____

2. List the steps in cleaning the steam table. _____

_____

_____

_____

_____

3. Never turn on the _____ until the compartment is partially filled with water.

Steam-Jacketed Kettle

The steam-jacketed kettle is used to cook large quantities of food quickly and efficiently. See Figure 3. To do this, steam is circulated between an inner and outer shell producing an even distribution of heat for cooking. The steam-jacketed kettles are constructed of aluminum or stainless steel. Sizes are determined by the capacity in gallons - 20, 40, 60, and 80. The 40 and 60 gallon sizes are used in most Air Force dining halls.

Steam-jacketed kettles can be dangerous equipment if not handled properly. Never turn on the heat unless water or food is in the kettle. If an empty kettle is allowed to heat, it may crack because of contraction when cold food or water is put into a hot, dry kettle. This may cause leaks. When the contents of the kettle are cooked, close the steam supply valve and remove the cooked product.

1. Safety valve/ air release
2. Steam outlet valve
3. Water inlet valve
4. Lid
5. Steam inlet valve
6. Drawoff faucet

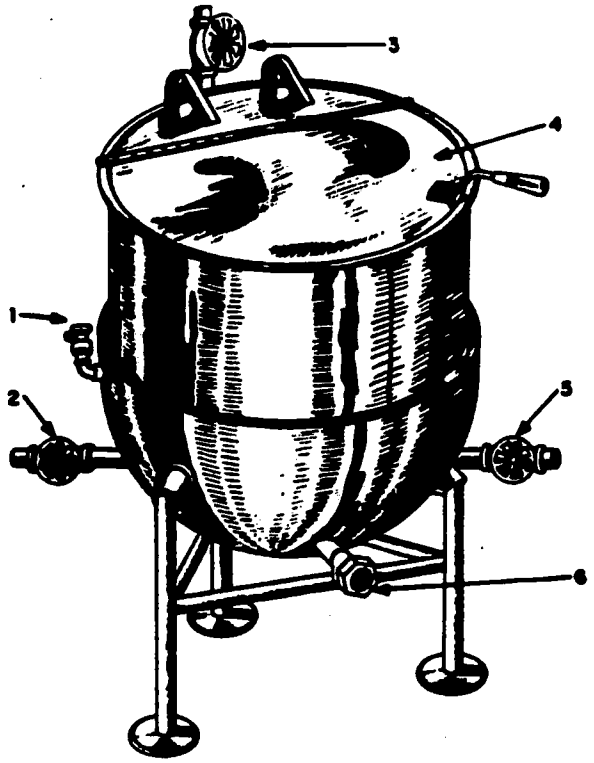


Figure 3. Steam-Jacketed Kettle

Remember that food will continue to cook for a short period of time after the supply of steam has been shut off. This cooking period should be figured into the total required cooking time to avoid having an overcooked product.

Clean the kettle very carefully after each use. No matter what kind or size of steam-jacketed kettle you have in your dining hall, you must do certain cleaning operations.

o Carefully remove the clogged strainer, empty it, and then wash and rinse it thoroughly.

o Remove any food particles from the drawoff pipes and valves with a rod that has a flexible wire brush.

o Wash the interior of the kettle well with soap and water. Use soap and a stiff brush if spots appear on the cover of the kettle wall. Rinse thoroughly.

o Wipe the exterior of the kettle wall and the legs with a damp cloth.

To keep the steam kettle in good condition and to maintain safe working conditions observe the following rules:

o Leave the cover open when the kettle is not in use.

o Inspect the steam pressure and see that there are no steam leaks in the fittings, piping, or valves.

o Lift the safety valve regularly to make certain that the disc is not sticking to its seat.

o Always open the steam outlet valve on direct connected models before turning on the steam valve.

o Do not turn on the kettle unless there is food or water in it.

o Open the steam inlet valve a little at a time and do not open it fully until all cracking noise has stopped.

o Stand to one side of the kettle when opening the cover to avoid escaping steam.

EXERCISE

1. If an empty kettle is allowed to heat it may _____ because of contraction when cold water or food is put into the hot, dry kettle.

2. What items are used to clean the kettle? _____

_____

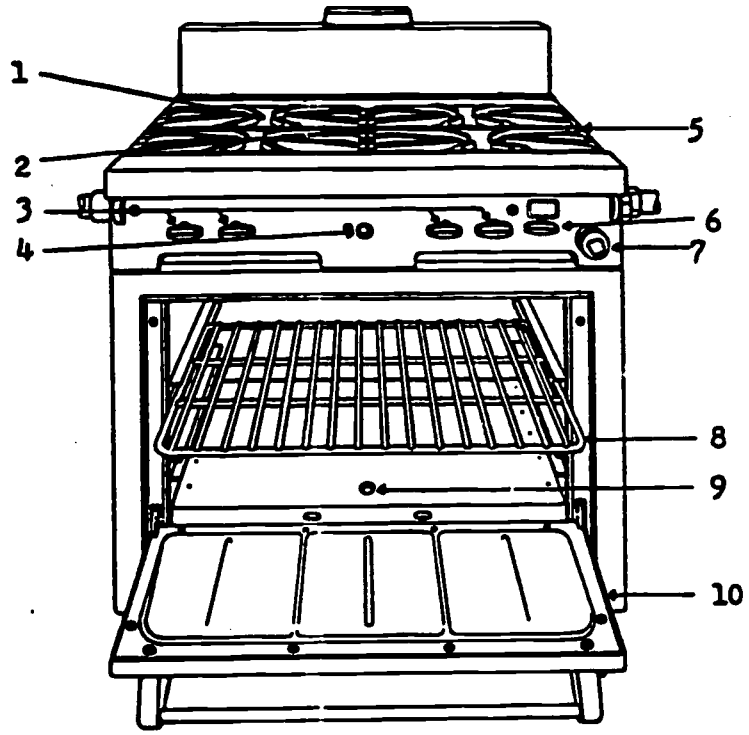
3. List two of the safety precautions to be observed when operating the kettle. _____

_____

Range

The ranges in Air Force dining halls are designed to cook, roast, and bake all types of food and liquids by an efficient heat controlled method. The ranges are centrally located in the kitchen close to other equipment.

Gas-fired ranges (Fig. 4) are equipped with a pilot light that burns constantly after being lit. On some ranges it is used to ignite burners automatically when gas is turned on to the burners. On other models the lighting is controlled manually by pushing a pushbutton (mounted on the front of the range) that increases the gas flow and forces the flame to the burners after you turn the gas on.



1. Pilot burner
2. Gas burner
3. Gas burner valves
4. Pilot burner button
5. Open top grates
6. Oven burner valve
7. Thermostat
8. Grate
9. Oven lighting porthole
10. Oven door

Figure 4. Range, Open Top, Gas Fired

You might think that everyone knows how to light a gas burner. There are, however, some important things to remember that will help make the job easier and safer. When the gas-heated range is not equipped with a pilot light, hold a burning match over the burner with one hand. With the other hand slowly open the control or gas cock until the burner is lit. If the gas does not ignite the instant the gas is turned on it indicates that the mixing tube and burner are full of air. The pressure of the gas should force the air through the tube and then the burner will ignite. This delay is particularly noticeable if the burners have long mixing tubes.

The range should be cleaned after every meal. This will prevent grease and spilled food from accumulating. Remove the encrusted matter on the top of the stove and on the grids with scrapers and a wire brush. Wash the grids with hot water and soap. Never use water or a damp cloth in the oven. Wipe the inside with a dry cloth and scrape off hardened material with a wire brush.

In addition to keeping the range in good shape, here are a few tips in keeping yourself in good shape.

o Keep your hands and arms away from open flames.

o Always make sure the oven pilot light is lit and the burner is burning before closing the door.

o Always use hot pads when handling hot pans and pots.

o Don't let foods spill over when removing pots from top of the range.

EXERCISE

1. When lighting the burner and there is a delay, what would be the problem? _____

_____

2. Name three safety precautions to observe when using the range.

_____

_____

_____

3. How often should the range be cleaned? _____

_____

Vertical Steamer

Vertical Steamer

1. Steam pressure gauge
2. Safety valve
3. Compartment steam valve control handle
4. Door locking mechanism
5. Main steam inlet valve
6. Compartment doors
7. Door tension wheel
8. Sliding shelf

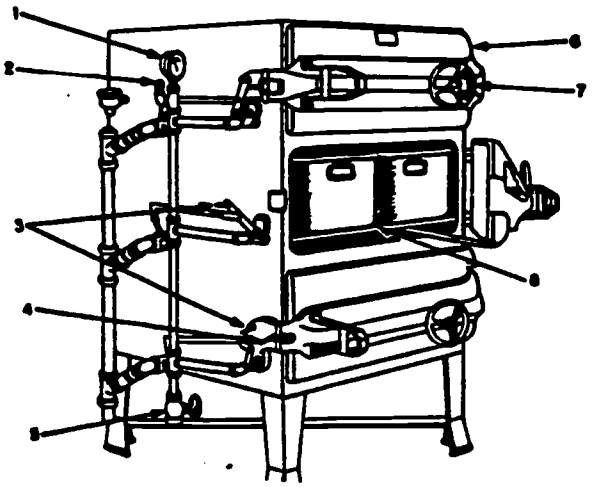


Figure 5. Vertical Steamer

The vertical steamer is primarily designed to provide well-cooked palatable foods in the shortest possible time. Originally, it was designed to cook vegetables but experience has shown that it is equally useful in cooking meats, poultry, and seafood. The steamer consists of an insulated body equipped with shelves to hold several solid or perforated baskets in which food is placed. The steamer in figure 5 has three compartments.

The tight fitting doors retain the pressure and prevent the escape of cooking odors. Various foods can be cooked in different compartments of the cooker at the same time without mixing flavors since each compartment is an entirely separate cooking chamber. When operating the vertical steamer follow the steps below.

- Place baskets of food in the steamer.
- Close and tighten the doors.
- Turn on the main steam inlet valve.
- Complete cooking process.
- Turn off steam inlet valve.
- Remove the cooked product from the chamber.

Clean the steamer thoroughly after each day's operation. The inside and outside should be washed with hot soapy water and then rinsed with hot, clear water. Then allow the steamer to air dry.

Vertical steamers can be very dangerous if not operated or maintained properly. Listed below are the safety precautions that should be observed:

o Compartment doors should be left open when the steamer is not in use.

o Check for obstructed safety valves.

o Never tighten doors excessively because it wears out the door gaskets. Just tighten enough to seal the joint.

o Never open doors when the steam is on.

o After the steam is turned off, loosen doors enough to release the pressure. Stand at the hinge side of the door when opening to avoid escaping steam.

EXERCISE

1. What is the next step in operating the steam after you place the food in it? _____

_____

2. What materials are used to clean the vertical steamer? _____

_____

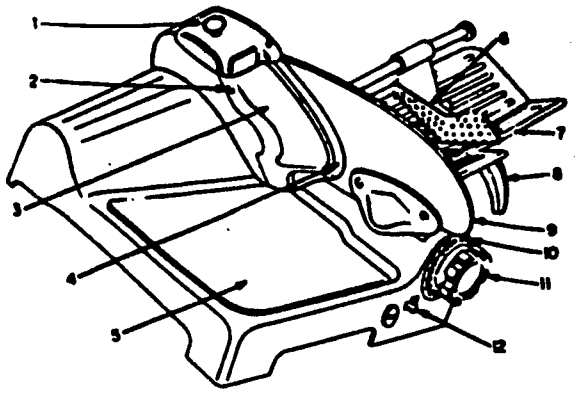
3. Name three safety precautions that should be followed when operating the steamer. _____

_____

_____

Meat Slicing Machine

This machine is designed for slicing hot or cold meat, vegetables, and cheese. It provides uniformity and speed in slicing with a minimum of waste. Slicers are made of either porcelain or stainless steel and are built to hold all the necessary devices for efficient operation. They may be either gravity fed or semiautomatic. On semiautomatic slicers the



1. Sharpening attachment
2. Slice deflector pins
3. Slice deflector
4. Cutting knife
5. Receiving tray
6. End slice plate
7. Feed carriage
8. Feed carriage grip
9. Thickness gauge plate
10. Thickness indicating scale
11. Thickness control knob
12. Motor switch

Figure 6. Meat Slicing Machine

meat is placed on a platform and then pushed toward the slicing knife by hand or by a push plate. On gravity types slicers the meat is placed on a V-shaped holder and fed to the cutting knife by gravity. Each slicer has a graduated dial or lever used to adjust the thickness of the slices. When the slicer is in use it is located in the kitchen on a cook's work table nearest the serving line.

Using the meat slicer is a simple, yet delicate operation. The entire machine and knife are constructed of sturdy material that can withstand years of hard wear. If the slicer is used with care, if all safety precautions are observed, and if the knife is cleaned and sharpened according to instructions, mechanical failure of the slicer will be held at a minimum. In case of any mechanical or electrical trouble immediately notify your supervisor. You must disassemble and clean the slicer following each use.

o Before starting your cleaning operation, turn the thickness control knob to "0" on the thickness indicator scale and disconnect the plug.

o The materials used to clean the machine are soap, hot water, a scrub brush, and two wiping cloths.

o Wash the stationary parts using one wiping cloth saturated with cleaning solution to remove all grease and food particles. Caution: Keep the cloth away from the cutting knife edge. Also watch your fingers to prevent contact with the cutting knife.

o Use the other wiping cloth wet with clear water to rinse off all traces of the cleaning solution. Wring the cloth dry and wipe the stationary parts dry. Use the same caution as described in washing the slicer.

o Use the rest of the cleaning solution to wash the disassembled parts.

o Rinse disassembled parts in hot water.

Don't serve a slice of your finger with the roast beef. Follow these safety precautions everytime you work with the slicing machine:

o Never use the slicer when the knife guard is detached.

o Remove electrical plug from socket immediately after each use.

o Keep your hands dry when using the slicer.

o Keep your hands away from the revolving knife blade.

o Never push food products against the knife blade with your hands; use the food grip.

o To avoid severe cuts to your hands never scrub or use a scrubbing motion when cleaning the knife blade.

EXERCISE

1. The following statements pertain to the meat slicing machine. Indicate whether they are true or false by marking T or F in the space before the statement.

_____a. Slicers may be gravity fed or semiautomatically fed.

_____b. When cleaning the slicer turn the thickness control knob to "0".

_____c. Leave the machine plugged in until you intend to use it again.

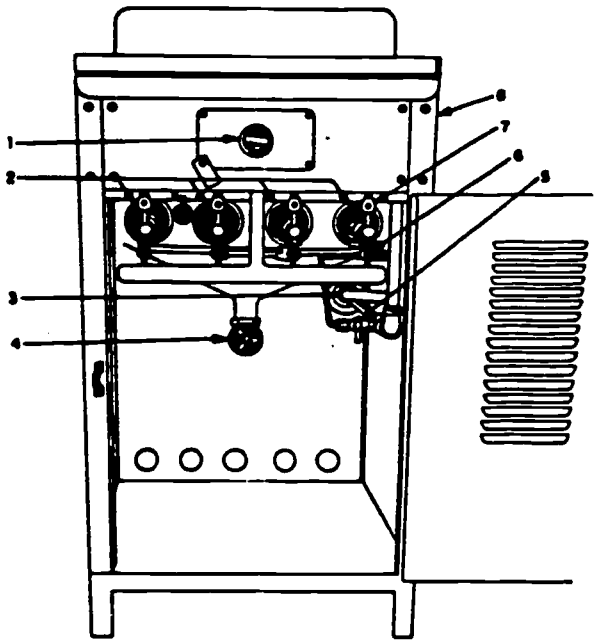
_____d. Never use the slicer with the knife guard detached.

Deep Fat Fryer

The deep fat fryer is designed for frying such foods such as meat, fish, poultry, potatoes, certain vegetables, and pastry products. The

deep fat fryer consists of a deep vessel for holding melted fat, a wire basket or baskets depending on the size of the fryer, gas or electric heating units, automatic heat controls, and a splash back. The fryer is located in the kitchen generally adjacent to the ranges in order to have a continuous flow of food from the fryer to the serving line.

There are both electric and gas-heated deep fat fryers. All have a thermostat to control the temperature of the fat. A gas-heated fryer is shown in figure 7.



1. Thermostat
2. Gas burners
3. Main gas valve handle
4. Fat reservoir drain valve
5. Pilot light valve
6. Gas burner valve
7. Pilot light burner
8. Body

Figure 7. Deep Fat Fryer, Gas Operated

The deep fat fryer must be filled with fat up to the proper level, about three-fourths full. Never turn the heating elements on until they are covered with fat or liquid. Never turn the thermostat to the highest point when preheating. Turn the thermostat to 250°F. and allow 10 minutes for preheating. Turn the thermostat off about 10 minutes before fat is drained from the fat vessel.

Each day you should look for and remove any film of fat deposited on the sides and the heating unit tubes. You must clean the fryer thoroughly. Once a week boil out the vessel with a cleaning compound. Then drain and refill the fryer with water, boil, and drain again. Add 2 or 3 ounces of vinegar to the final cold rinse to neutralize any cleaning compound that may be left. Be sure to wipe the fryer dry. All water mixed in with fat can cause trouble when heated. The hot fat will cause the water to splash out or boil over the sides.

Proper use, cleaning, and care of the fryer will result in better food products and a longer life for the deep fat fryer.

For safety, never overfill the fryer with fat. Fill it about 1-inch below the lower edge of the spill back. Check the drain to make certain that it is shut and does not drip.

Never heat the fat to the smoking point. The maximum temperatures should be 380 degrees. Check this temperature with a deep fat fryer thermometer. Remember that the temperature of the hot fat is much hotter than that of boiling water. The hot fat can cause serious burns.

EXERCISE

1. To what temperature do you preheat the deep fat fryer? _____

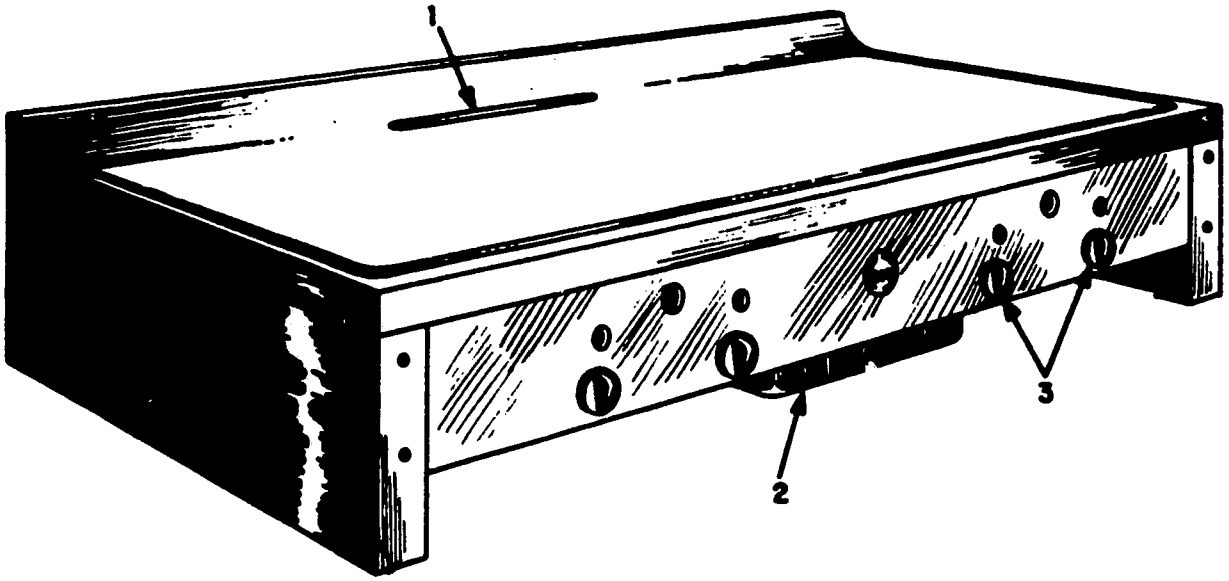
_____

2. What is the minimum time the heat should be turned off before you drain the fat from the fryer? _____

Griddle

The griddle is designed to fry foods that require cooking in little or no fat. It can be used for cooking meats, fish, poultry, eggs, certain vegetables, and batter products. Griddles are usually located on the serving line or adjacent to it. Thus, you can serve people hot food direct from the griddle.

A typical griddle is shown in figure 8. There are two types of griddles used in the dining hall. One type is gas operated and the other is electrically operated. Both types have temperature controls to maintain the proper frying temperature.



1. Drain slot
2. Grease receptacle
3. Burner control valves

Figure 8. Griddle

In operating the electrical type grill the following steps are used:

- o Turn on the heating unit.
- o Regulate the thermostat.
- o Allow the griddle to preheat (about 7 minutes).
- o Lightly grease the grill.
- o Place the food on the griddle plate.
- o When the cooking process is complete turn off the grill.

To clean the griddle, scrape the residue off with a metal scraper. Wipe off any excess grease with a heavy cloth and use a griddle stone until the surface is free from all food particles. Use a clean cloth to complete the cleaning process. Never wash the griddle plate with soap and water. The griddle should be checked for cleanliness before using again.

Safety precautions to follow when using the griddle are:

o Do not allow grease receptacles to overflow.

o Do not put water on griddle plate or allow water to come in contact with electrical parts.

o If griddle is electrically heated remove the electric plug after using.

o Turn off burners after each use.

EXERCISE

1. After cooking on the griddle wipe the grease off and use a _____ to free the surface from food particles.

2. What are the safety precautions to observe when using the griddle? _____

_____

_____

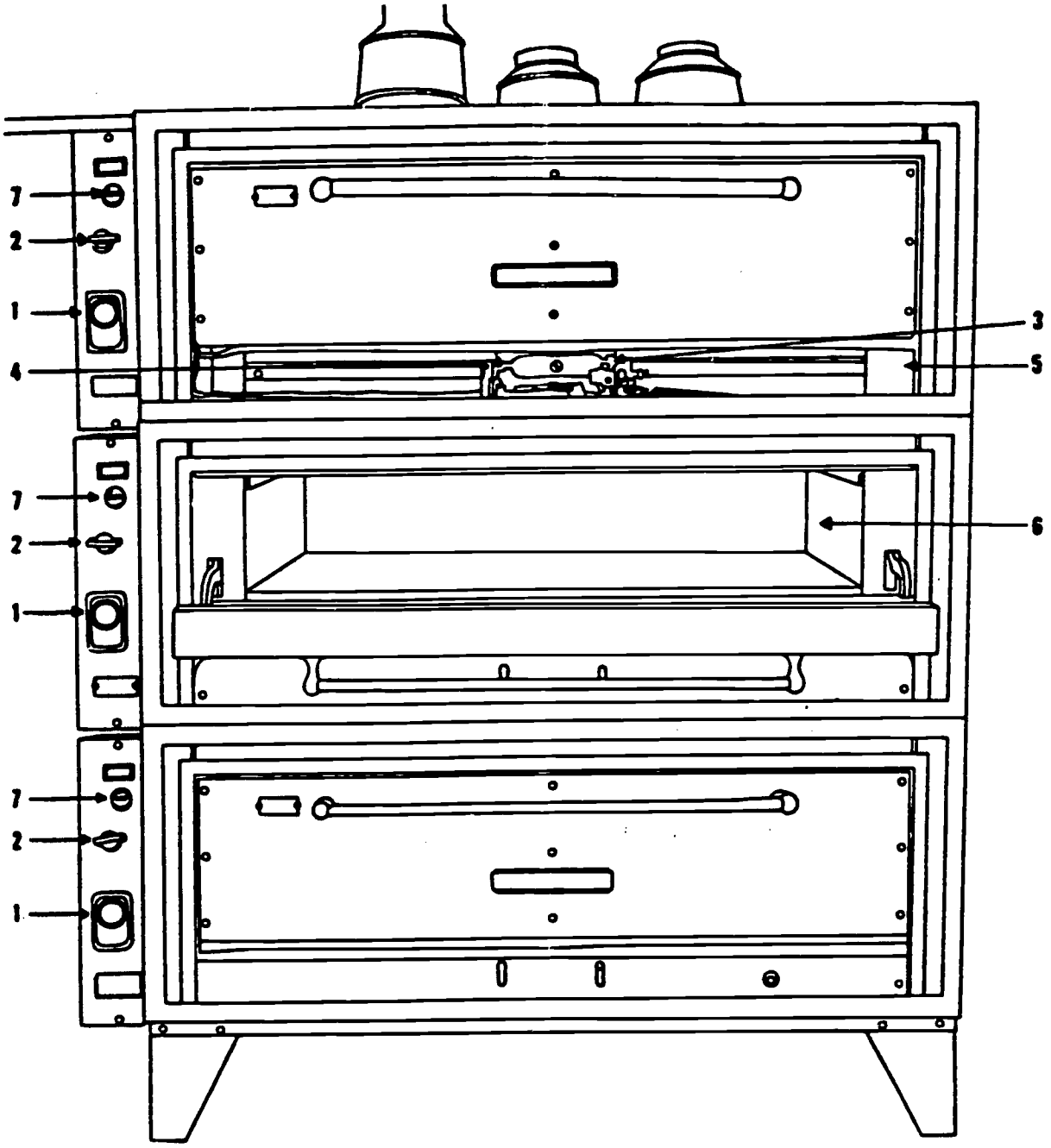
_____

3. How long should the griddle be allowed to preheat? _____

Sectional or Stack Ovens

The cooking or roasting oven is designed specifically to bake or roast foods under sanitary conditions by regulated heat. The two main fuels used for heating the ovens are gas and electricity. The type of oven most commonly used in the Air Force is called a "sectional" or "stack" oven which is illustrated in figure 9. You can see in figure 9 that each of the sectional ovens has its own burner compartment, thermostat, and controls. Each oven can be set at a different temperature and can be used for either baking or roasting. The individual compartments of the ovens are placed one above the other. The ovens are centrally located in the kitchen adjacent to the other equipment and within easy access of the serving line.

Open the oven door on the gas oven 10 minutes before lighting to clear away any accumulated gas. Do this as a safety precaution. Open the burner compartment door, light a match or other lighting agent, and hold the flame to the pilot burner or top of the oven burner. Turn the temperature control(thermostat dial) clockwise to the oven temperature required and allow the oven to preheat for at least 20 minutes. You will learn the exact time required through experience.



1. Thermostat
2. Gas burner valve
3. Pilot light
4. Gas burner
5. Burner compartment
6. Oven compartment
7. Pilot light gas valve

Figure 9. Sectional or Stack Ovens

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To make oven cleaning a less distasteful job, remove boilover and spillover material before it has time to carbonize. When the oven is cool, wipe the interior with a damp cloth daily. Scrape the bottom if necessary. Never throw water on oven decks to cool them. Swab with a damp cloth. After each use, remove grids, wash thoroughly, rinse, and air dry.

Follow the suggestions given below and it will reduce maintainence work on the ovens and protect both equipment and personnel.

o Leave oven doors open to completely air dry the interior of the ovens.

o The heating element may be turned on for 5 minutes to help dry the oven.

o When using the oven never close the door without checking to make sure the gas is lit.

o Wipe up spilled grease immediately as grease can cause a fire or create a hazard.

o Before lighting the ovens leave the door open for 10 minutes to allow gas fumes to escape.

o Never wash the oven while it is hot because this causes warping.

o Use dry cloths to protect your hands and grasp pans with both hands when removing them from the ovens.

EXERCISE

1. Ovens are not washed while they are still hot because _____

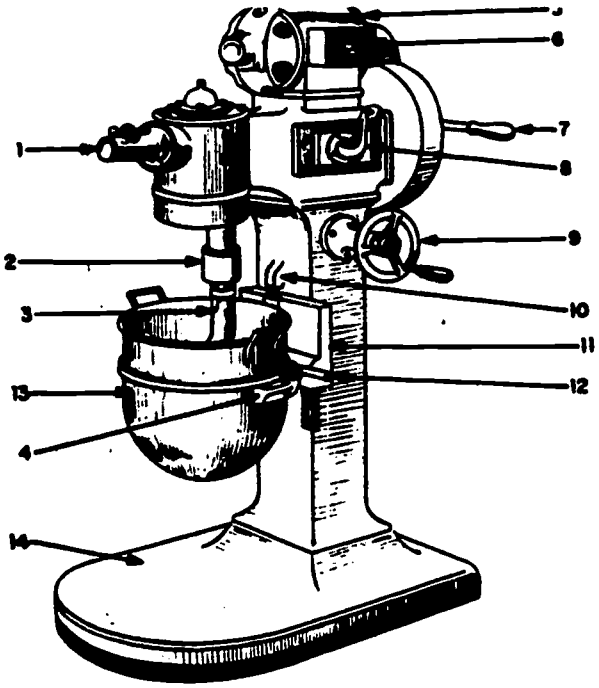
_____

2. Open the oven compartment door on the gas oven _____minutes before lighting to clear away any accumulated gas.

Vertical Food Mixing Machine

The food mixer is used to mix or whip foods and liquids in large quantities to a desired consistency at controlled speeds. The mixer consists of a one-piece cast iron frame with a three or four-speed enclosed electric motor, a bowl support or holder, bowls, and various attachments.

The mixing machine is located conveniently near work tables, steamers, ranges, and steam kettles. There should be plenty of working area around it. There are two types of vertical mixers: pedestal mounted (figure 10) and table mounted.



1. Attachment hub
2. Revolving shaft housing
3. Beater whip socket
4. Bowl support
5. Motor
6. Motor switch
7. Clutch handle
8. Speed selector handle
9. Handwheel for raising or lowering
10. Bowl support guide travel stop
11. Bowl support guide
12. Bowl lock handle
13. Bowl
14. Base

Figure 10. Vertical Food Mixing Machine

Bowls are usually made of steel and have handles and lugs. Each mixer has a bowl holder or support consisting of two metal arms that extend outward from the frame and upon which the bowl rests. The bowl holder can be raised or lowered easily and gradually by a hand-operated lever. Attachments include wire whips, dough arms, different types of beaters, and a meat and food chopper (figure 11).

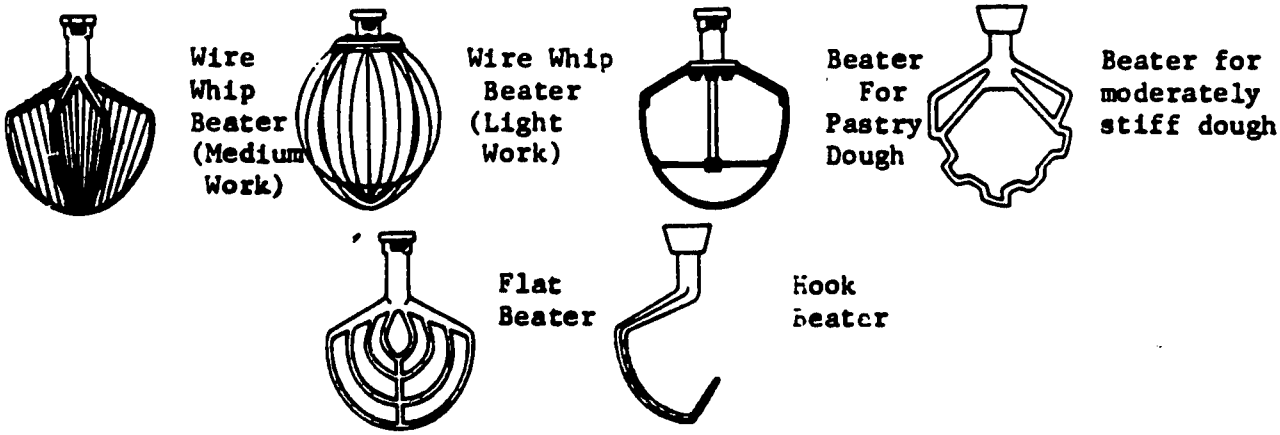


Figure 11. Beaters for the Food Mixer

Before operating the machine put the ingredients into the mixing bowl and place it in the bowl support; then lock it in position. Put the correct attachment in the hub. The wire whips are used for creams, eggs, and light work; the flat beater for batters and medium work. A hook-shaped beater is used for bread dough. When the correct attachment is firmly in place raise the bowl to the correct level, select the proper speed, and start the motor. You will notice some recipes call for a change in speed after the mixing process has started. When shifting into to different speeds use care to avoid slipping gears. When you are through, turn the motor off, lower the bowl, and clean it out.

After each use, remove the bowl and attachments; wash them with soap and water; rinse thoroughly; and air dry. After each use, wipe off the outside of the unit with a damp cloth. Always wash the bowl and beater immediately after use to prevent food from drying on the surface. After beating egg mixtures or flour batters, rinse the bowl and beater with cold water. Then use hot water to wash them. If you use hot water first the eggs or flour mixture will be cooked onto the surface of the bowl and beater making it more difficult to clean them.

While mixers can operate at capacity continuously for 1 hour without overheating or damaging the mixer, you must be careful never to overload or overheat the motor. Bowls are expensive pieces of equipment and should never be dented. Raise and lower the bowl holder gradually. Never drop the bowl.

Remove heavy bowls from the mixer to a bowl truck. If a bowl truck is not available get someone to help you carry the bowl. Don't drag the bowl across the floor. That will scrape the surface and may dent the bottom of the bowl.

It is easy to lose a hand or arm in a mixer if you are careless. Practice all the safety rules at all times.

o Never scrape the product down in a mixing bowl while the mixer is operating.

o Keep your hands away from beaters or whips when the mixer is operating.

o Keep the motor dry and the area around the mixer dry and clean.

o Never start the mixer when the beaters or whips are not properly attached to the spindle.

o Fill the mixer bowl only to three-fourths capacity. Never overload. The food mixing machine, bowls, beaters, and whips can be efficiently and properly used if you observe the instructions in the use and capabilities of this equipment. Proper care of attachments is essential and the following are a few reminders for good operation:

o Do not use mixing bowls as stock pots for cooking. Mixing bowls are for mixing only.

o Use proper beaters and whips as indicated on job operations sheet.

o Don't strike beaters or whips against the bowl.

o When changing speeds insure the proper meshing of gears.

EXERCISE

1. After beating egg mixtures rinse the bowl and beaters with

---

2. List the safety precautions to observe when operating the mixer.

Automatic Coffee Maker

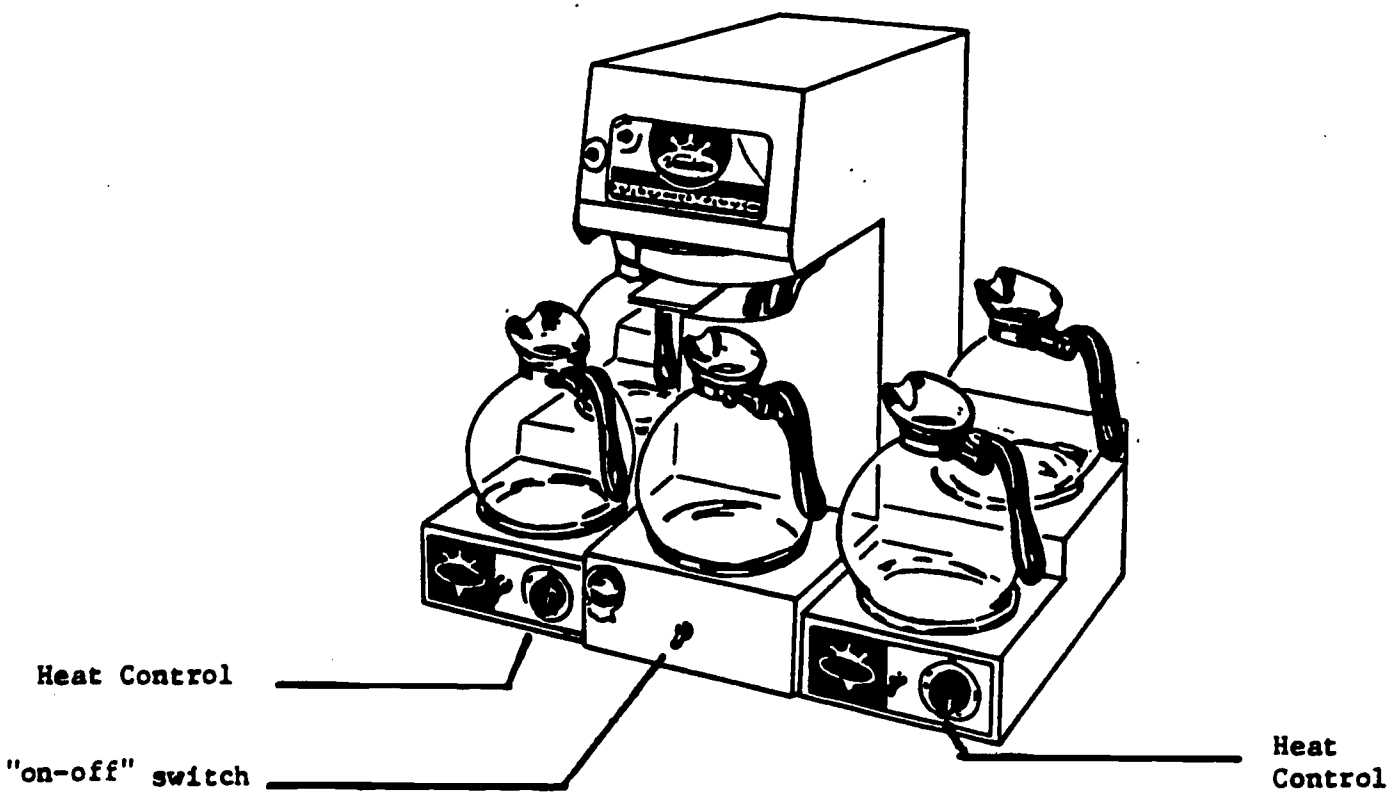


Figure 12. Automatic Coffee Maker

Thecoffee maker is designed to brew fresh coffee under strict sanitary conditions. Each coffee maker is made in units and each unit may contain four of five burners set in a single or double deck. The electrically operated coffee maker has the on and off switch and the heat control switches on the front. This type of coffee maker is shown in figure 12. Glass bowl containers are supplied for the actual brewing of the coffee. The coffee grounds are measured and put into disposable paper filters at the top of the machine. An empty glass container is placed on the brewing burner and the switch is turned on. The coffee is made by hot water brewing over the coffee grounds. When the brewing is completed remove the container to one of the warming burners. Remove and discard the grounds immediately after brewing is completed.

When the glass bowl is empty; clean in clear, hot water. If coffee stains are visible remove them by using baking soda on a clean, damp cloth. The coffee maker and burners should be cleaned with a damp cloth.

A few safety precautions to follow when using the coffee maker are:

o Never put hot glass bowls in cold water. They may crack.

o Check all connections for short circuits in electrically operated models.

o Turn off burner when not in use.

EXERCISE

1. What is used to remove coffee stains from the glass bowl?

_____

2. What would happen if you put a hot glass bowl in cold water?

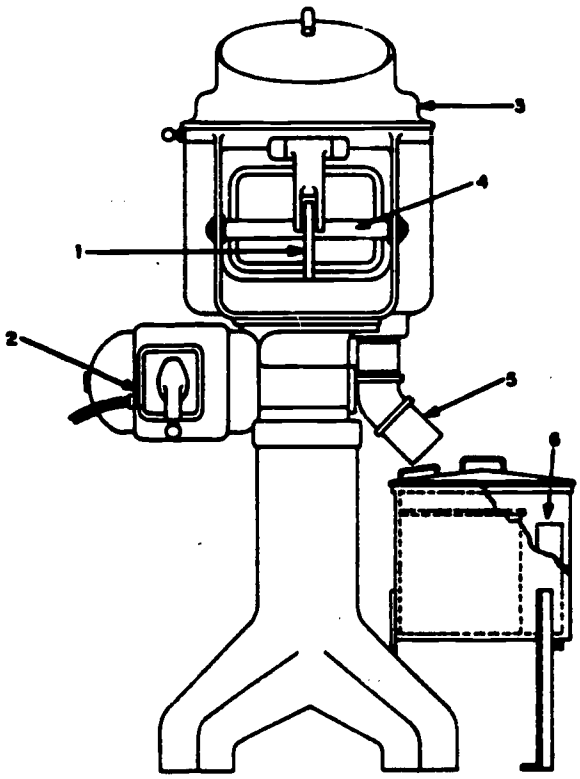
_____

3. Where are the heat controls located on the coffee maker?

_____

Vegetable Peeler

The vegetable peeler as shown in figure 13 is designed to peel potatoes and other root vegetables with the least amount of waste. The vegetable peeler consists of a hopper, a disc, peel trap, and motor. The vegetable peeler is located near the vegetable work area and the vegetable storage rack near a floor drain. The hopper is round in shape and has a funnel shaped top opening to permit pouring vegetables in without spilling. The



1. Door locking lever
2. Electric switch
3. Hopper
4. Outlet door
5. Drain
6. Peel trap

Figure 13. Vegetable Peeler

entire inner surface is covered with an abrasive substance. The outlet for removal of vegetables has a hinged door with a locking device and a chute for discharging the vegetables. Potatoes are peeled by the action of the revolving disc.

To make vegetable peeling more economical sort the vegetables to be peeled according to size. For instance, if you put large and small potatoes in the peeler at the same time the small ones will be peeled down to nothing before the large ones are finished.

Before you pour in the vegetables close and lock the outlet doors. Open the wash water valve. Then start the motor and place the vegetables in the hopper. When peeling is completed open the outlet door. Empty the peel trap after three or four loads of vegetables.

Every time you use the vegetable peeler you must wash and rinse the disc. You should also pour hot water into the peeler until no sediment or peeling drains through the outlet pipe. Empty and rinse the peel trap as soon as you are through using the peeler and wash and rinse the strainer. Wipe the exterior surface with a damp cloth when you are through with the machine.

For best service take care of your machine. Be sure that there are no foreign materials in with the vegetables. Check carefully as you pour the vegetables into the hopper. Remember that it is running water that cleans the vegetables as they are being peeled and helps to keep the drain from being clogged.

Cleaning the machine is another preventive maintenance principle. At the end of each days operation remove the top cove and lift out the disc by its handles. Pour a bucket of hot water into the peeler to wash out the peelings. When the machine is not in use leave the discharge doors open to reduce wear and tear on the gasket and to let the inside of the machine air dry.

Play it safe. Never overload the peeler. Check its rated capacity before loading. Check the abrasive disc before starting the machine. Make sure that it is secured in place. Do not put your hands into the machine when it is operating. Keep water off of the motor. Don't take a chance of electrocuting yourself.

EXERCISE

1. The vegetable peeler peels _____ and other _____ vegetables.

2. How often should you empty the peel trap on the vegetable peeler?

_____

3. Name the safety precautions to follow when using the vegetable peeler.

_____

_____

_____

Tilt Grill

This piece of equipment, as shown in figure 14, can be used more often and in more different ways than any other piece of cooking equipment in the kitchen. It can be used as a range, frying pan, griddle, boiler, deep fat fryer, saute pan, or kettle.

The grill's even heat pattern, its convenient working height, the contoured lip, and tilting mechanism makes this an excellent piece of equipment to work with. The tilting concept eliminates ladling, heavy lifting, and possible spillage. Food can be transferred directly to the serving pan.

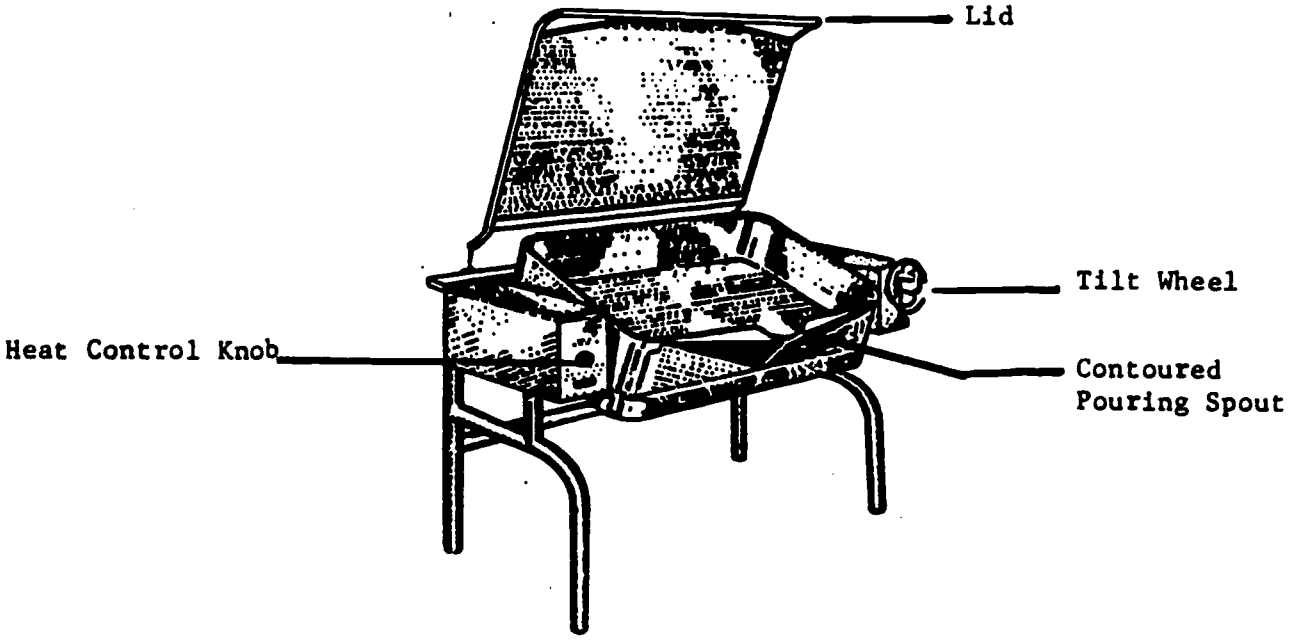


Figure 14. Tilt Grill

The clean up time is reduced considerably. The grill is located on steel legs high enough off the floor to make cleaning under the unit much easier. The materials used in cleaning the grill are hot, soapy water and a soft brush. After cleaning the unit is rinsed with clear hot water.

Some safety precautions to observe when using the grill are:

o Prevent falls by making sure the area around the grill is free of grease and water.

o When lifting the lid while the grill is in operation stand to one side so you won't be burned by steam.

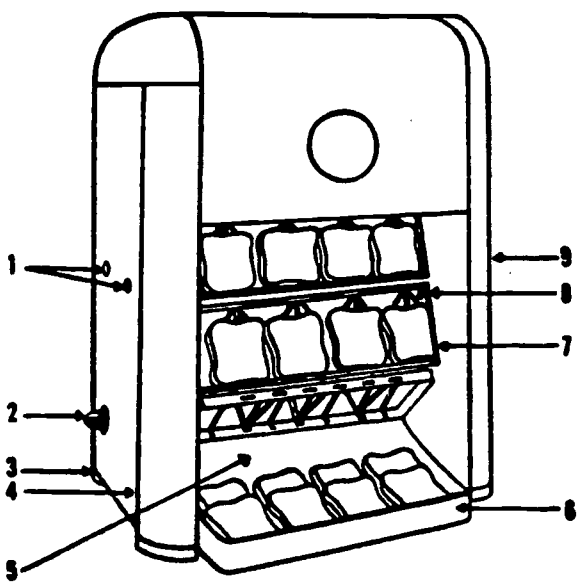
o Always use hot pads when handling hot pans and pots.

EXERCISE

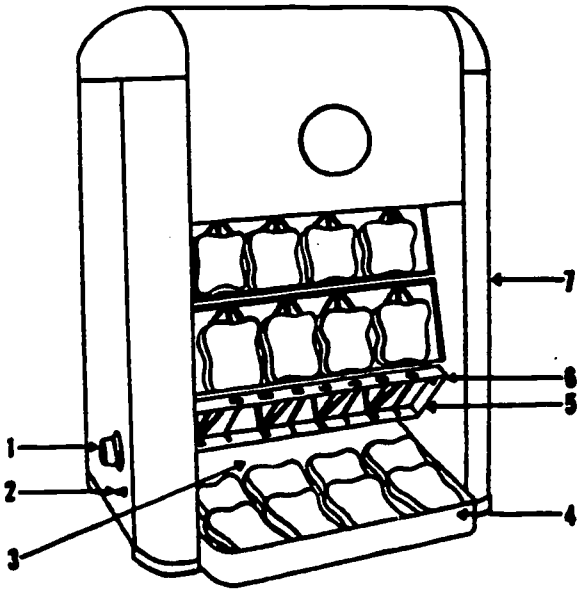
1. List four different ways the tilt grill can be used to cook food.

2. What materials are used to clean the tilt grill? _____

Toasters



1. Lighting port holes
2. Thermostat
3. Gas valve (not shown)
4. Motor switch
5. Toast slide
6. Toast tray
7. Toast basket
8. Basket locking pin
9. Hand wheel (not shown)



1. Thermostat
2. Motor switch
3. Toast slide
4. Toast tray
5. Toast basket
6. Basket locking pin
7. Hand wheel (not shown)

Figure 15. Toaster, Rotary

There are two types of toasters used in the dining hall. They are the rotary toaster (figure 15) which is electrically operated and the pop-up type (figure 16). The rotary toaster is the most commonly used because of its capacity of producing 540 slices of toast per hour. Before using the rotary toaster check for cleanliness and proper operation. To operate the toaster; turn on the conveyor motor and then the heating unit switch; insert bread; when finished using the toaster all switches should be in the off position.

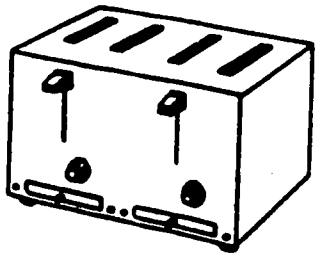


Figure 16. Pop-Up Toaster

The rotary toaster can be cleaned simply by disassembling the main parts of the toaster that allow internal access and clean with a damp cloth. Remember to unplug before cleaning.

The pop-up toaster can be either a 2 or 4 slice unit. The four slice unit will produce 350 slices per hour. It is an excellent item for most dining facilities although it is normally used by the smaller dining facilities.

Refrigeration Equipment

There are three types of refrigerators. They are:walk-in, reach-in, and freezer. The walk-in and reach-in refrigerators are used to preserve food in its normal state at a normal temperature without freezing. The freezer is a deep freeze box used to freeze and hold frozen foods until ready for use. When cleaning refrigerators prepare a cleaning solution composed of baking soda and water or vinegar and water. Remove all food and place immediately in another refrigerator to prevent spoilage. Wipe clean the entire area including duckboards and shelving. Allow the refrigerator to dry thoroughly before replacing contents.

Inspect refrigerators and freezers for proper operating temperature and cleanliness. As a safety precaution keep doors closed to maintain proper temperatures. Also make sure that no one is inside a refrigerator before closing and locking doors.

EXERCISE

1. What three types of refrigerators are found in the dining hall?

_____

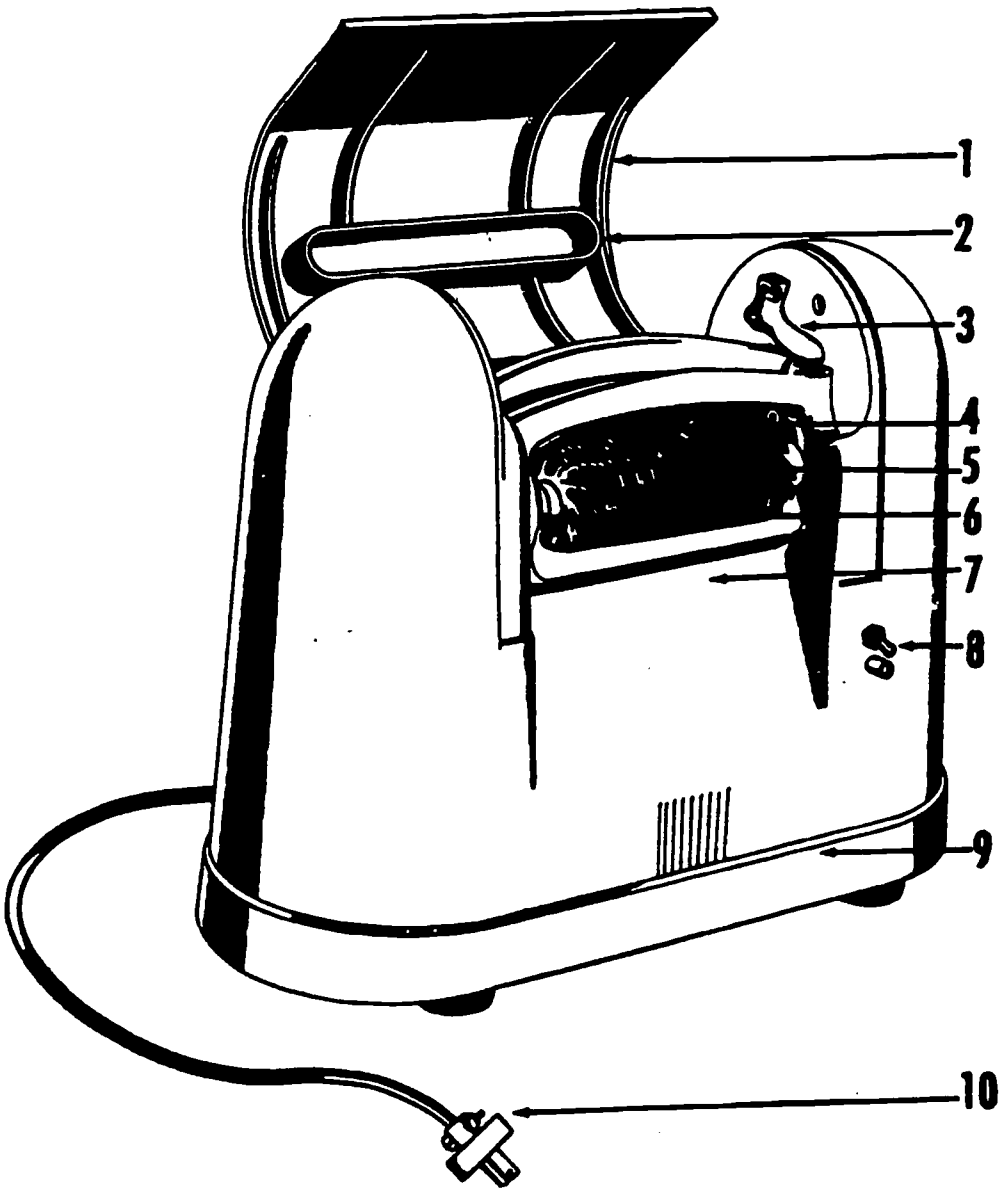
_____

2. What solution should be prepared to clean refrigerators?

_____

Meat Tenderizer

The meat tenderizer (figure 17) is used to make less tender cuts of meat tender. This is done by the process of cutting the fibers in the meat. When operating the meat tenderizer make sure the protective cover is closed and that all moving parts are locked into position.



1. Protective cover
2. Feeder slot
3. Latch
4. Comb
5. Knives
6. Roller and shaft
7. Chute
8. Switch
9. Body
10. Plug and cord

Figure 17. Meat Tenderizer

The meat is then inserted into the feeder slot and removed from the chute. If the meat becomes lodged in the tenderizer do not try to force or pull it through the rollers. Turn off and unplug the machine. Remove the comb, knives, roller, and shaft. Remove the meat and reassemble the machine. After operation disassemble and wash all parts with hot, soapy water; rinse and air dry.

EXERCISE

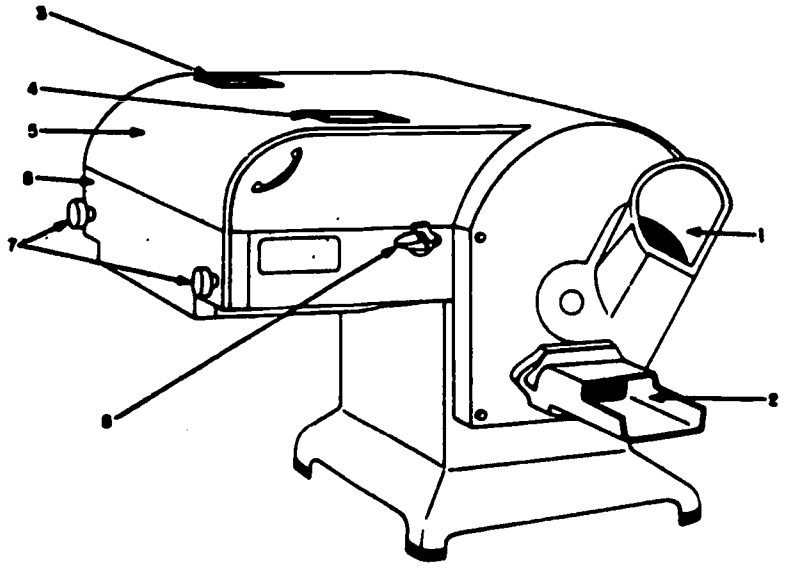
1. What should be done if the meat becomes lodged in the tenderizer?

_____

_____

_____

Vegetable Chopper



1. Bias slicing entry
2. Horizontal slicing entry
3. 7/16 strip cutting entry
4. 3/16 strip cutting entry
5. Top cover
6. End plate
7. Knurled knobs
8. Slicing adjustment

Figure 18. Vegetable Chopper

The vegetable chopper is an electrically operated piece of equipment used to cut various vegetables into strips and thicknesses. It can also dice, rough cut, and fine chop vegetables. Extreme caution should be exercised in keeping the fingers from the entry ports. The reason for this is the high rate of speed that the rotary cutting blades travel. Carelessness could result in a loss of a finger or the entire hand. To properly operate the vegetable chopper set the adjustment to the desired cut; turn the switch to the "on" position and feed the product into the chopper. After use turn the switch to the "off" position and unplug. The vegetable chopper can be cleaned with a solution of soap and water. Rinse the machine thoroughly and allow it to air dry.

EXERCISE

1. Why must extreme caution be exercised when operating the vegetable chopper? _____

_____

_____

As you have already discovered the food service career field is constantly changing especially in the area of equipment. Today's modern technology has permitted many advances in food service equipment. It would be almost impossible to cover all the different types of equipment within this lesson that you will come in contact with during your career.

You should remember that whatever the piece of equipment always consult your supervisor before you attempt to operate it and always follow the applicable "Safety Precautions". Remember, equipment safety begins with the operator.

PORTABLE EQUIPMENT

Handtools

Handtools are hand operated items including such necessary tools as knives, meat forks, scrapers, scoops, wire whips, and spatulas. Many handtools are issued in different sizes and shapes to meet the different uses for which each piece was designed. There is a right way and a wrong way to use and maintain each tool.

Knives are classified as cutting, slicing, or chopping tools. Like other bladed tools the angle at which they are held and the cutting motion used increases or decreases their value as a tool. For example, after the first incision is made in carving meat the angle at which the knife is held should never be altered or a jagged or uneven slice will result.

Your trainer will explain and demonstrate knife handling techniques; however, only practice will enable you to attain and maintain proficiency.

Sharp knives are essential if the user expects to do an efficient cutting job and they can be kept sharp only if properly used. A water stone or carborundum oil stone is used to sharpen the edge of a knife.

How knives are used and cleaned has a lot to do with keeping them in good condition. They should be washed in warm, soapy water; rinsed and dried before being placed in storage. Knives with wooden handles should not be allowed to stand in water, this causes the handles to swell and pull away from the shaft. Also, knives left in water could cause serious injuries to an unexpecting person. An important safety measure to follow when handling knives is: if a knife falls; stand back; let it fall; then pick it up.

Meat forks, basting spoons, spatulas, wire whips, collanders, and can openers are considered miscellaneous pieces of equipment. As with other tools there is a right and a wrong way to use them. Handle them carefully and keep them clean. A brush and warm soapy water will do the trick. Each piece should be carefully stored when it is not in use. Have a definite storage place for each item.

You will work with kettles, measures, dippers, pots, and pans of all descriptions. To be in good working order they must be cleaned thoroughly after each use and stored properly. To clean them wash them in hot soapy water. They should then be rinsed in clear hot water and air dried. Remove burned foods or grease that sticks to a pan by putting water in the pan, covering it, and boiling it for a few minutes. This will loosen the food particles and they can be removed with hot soapy water and a stiff brush. Store pots and pans in a dry place bottoms up. Do not put one utensil inside the other. A proper circulation of air is needed to prevent rust.

Different kinds of metal require different care. Thus, it is important to be able to identify the various metals so that the proper cleaning agents and methods can be applied. Appropriate methods are as follows:

Stainless steel - Never use harsh scouring powder on stainless steel utensils.

Tin or plated metals - Hot soapy water is most effective for cleaning such items. Never use sharp tools in scraping food from tin or plated metals. This may remove the coating and expose the base metal. To remove burned on foods boil the pan in a solution of baking soda until the residue is softened.

Aluminum - Aluminum utensils should not be cleaned with soda, lye, or highly caustic washing powder. Discoloration of the metal will result.

When lifting or transporting heavy pots and pans take time for safety. When pans are hot; use hot pads and when the pans are heavy have someone give you a helping hand.

EXERCISE

1. What is the definition of handtools? _____

_____

2. For what reason should knives not be left in water? _____

_____

3. Name the materials used in keeping hand tools clean. _____

_____

4. What cleaning material should be avoided when cleaning tin or plated metals? _____

5. State the safety precautions that should be used when handling hot, heavy pans. _____

_____

6. To prevent _____ a utensil should not be stored inside another.

PROBLEM 1

Below is a list of fixed equipment. Identify the operation and maintenance procedures for each item by matching column A with colum B. (Each item has two responses). Use AFM 146-8, Operation and First Echelon Maintenance of Food Service, to help solve this problem.

Column A		Column B
1. Steam-jacket kettle	____ ____	A. You should never operate this piece of equipment when the knife guard is detached.
		B. When cleaning this piece of equipment turn thickness control knob to "0."
2. Vertical steamer	____ ____	C. When operating this piece of equipment make sure the protective cover is in place and all parts are locked in place.
		D. To clean this piece of equipment remove the comb, knives, roller, and shaft.
3. Deep fat fryer	____ ____	E. When operating this piece of equipment, you should always check for an obstructed safety valve.
		F. The compartment door should be left open when this piece of equipment is not in use.
4. Meat slicer	____ ____	G. Before operating this piece of equipment always check the drain valve. This piece of equipment should be filled 1-inch below the lower edge of the spill back.
		H. Boil out the vessel with a cleaning compound. Then drain and refill with water, boil, and drain again. Add 2 or 3 ozs. of vinegar to the final rinse to neutralize any cleaning compound that may be left.
5. Meat tenderizer	____ ____	I. When operating this piece of equipment always open the steam outlet valve before turning on the steam inlet valve.
		J. After food has been removed always fill with cold water and allow to soak.

PROBLEM 2

Below is a list of portable equipment. Using AFM 146-8 identify the function for each item by matching column A with column B.

1. Ladles _____	A. Used to separate or drain liquids from solid foods.
2. Spatulas _____	B. Used to serve liquids.
3. Colander _____	C. Used to sharpen the edge of knives.
4. Oil Stone_____	D. Used to turn and/or remove foods from a griddle.

All the items listed above have the same maintenance procedure. What is it?

_____

_____

PROBLEM 3

Airman Jones has been cooking french fries in the deep fat fryer during the lunch meal. The grease has a layer of food particles floating on top and sediment on the bottom around the heating units. Airman Jones turns the thermostat off and places a container under the drain. He then opens the drain valve all the way and jumps back so that he does not get burned by the hot grease. While the grease is draining Airman Jones gets a pitcher of water to use in flushing the sediment out of the reservoir before closing the drain valve. Next, Jones uses a damp cloth to wipe the inside of the reservoir and then pours the drained fat back into the reservoir.

What safety precautions did Airman Jones violate?

_____

_____

_____

Airman Jones was assigned to carve the steamship roast during the lunch meal. After the meal Jones hurriedly cleaned his area which included taking the sheet pan, carving board, steel, French knife, and meat

fork to the pot and pan area. While he was carrying the equipment to the pot and pan sink, he began day dreaming about the plans he had for the evening. Then, Airman Jones put the equipment in the water. SSgt Blake called him into the office for a minute. When Jones returned from the office, he got a pan of soapy water and went to clean the serving line.

What safety precautions did Airman Jones violate?

_____

_____

_____

Airman Barker is told to remove the potatoes from the steamer. He rushes to the vertical steamer and begins to turn the tension wheel on the door to open it.

What safety precaution or precautions did Airman Barker violate?

_____

_____

_____

Airman Halftrack is responsible for cooking the pot roast for the dinner meal. He checks the steam-jacketed kettle to see if it is clean. The kettle was cleaned satisfactorily so he turns the steam on full and leaves to get the pot roast from the thaw box. After placing the pot roast in the steam kettle, he adds 1 lb. of shortening to the pot roast.

List the safety precautions that Airman Halftrack violated.

_____

_____

_____

Cook Course
Lowry AFB, CO

SW 3ABR62230-II-3
April 1975

COOKING TERMS, SEASONING AGENTS, AND WEIGHTS AND MEASURES

OBJECTIVES

a. Given a list of cooking terms and definitions, match the term with the definition.

b. Given a list of food items and seasoning agents, match the agent with the food item.

INTRODUCTION

In this lesson you will learn about cooking terms. Cooking terms are used in every kitchen and should be understood by all cooks. Also, this lesson covers seasoning agents (herbs and spices). The purpose of seasoning is not to disguise but to enhance the natural flavor of the food you are preparing. It takes a real artist to obtain a blend of seasoning that will bring out the natural flavor of the main ingredient.

Finally, we will cover weights and measures. All receipes have instructions for weighing and measuring. Accuracy in weighing or measuring ingredients is the key note for successful cookery. To become a good cook it is important that you know and understand cooking terms, seasoning agents, and weights and measures.

INFORMATION

COOKING TERMS

Definitions

BAKE. Cook food in an oven with dry heat. Uncovered containers are used.

BARBECUE. To roast slowly, basting the food with a highly seasoned sauce.

BASTE. The process of moistening food with a liquid while cooking to add flavor and prevent the surface from drying out.

BEAT. Use a fast, rotary, over and under movement to incorporate air into the mixture.

BLANCH. To cook food in hot, deep fat for a short time until partially cooked but not browned. Also, to dip vegetables, fruits, or nuts into boiling water for a few minutes to remove the skin.

BLEND. Mix two or more ingredients so that they lose their original properties and become an entirely new product.

BOIL. Cook food in water or liquid.

BRAISE. Brown food in fat and then cook it slowly in a small amount of liquid in a covered utensil at a simmering temperature.

BREAD. Coat with a mixture such as dipping in beaten eggs and then in bread crumbs.

BROIL. The cooking of food by direct heat.

BROTH. Liquid in which food has been cooked.

CARAMELIZE. Heat sugar in an uncovered pan until the sugar has a definite brown color and distinctive caramel flavor.

CHOP. Cut food into small pieces or run through a hand or mechanical food chopper.

COAT. Completely cover the outer surface of any food with any specific coating agent such as flour.

CREAM. Use a spoon or mechanical mixer to soften the consistency of any given food.

CUBE (DICE). Cut any food into cube-shaped pieces.

DEEP FAT FRY. Cook any food in a deep fat medium.

DOT. Prior to placing in oven put small pieces of butter, fat, or cheese over surface of a food product to be baked or broiled.

DREDGE. To sprinkle, dust, or otherwise cover food with a dry material such as flour, sugar, bread crumbs, etc.

FOLD. Combine two or more ingredients with a cutting and folding motion.

FRY. Cook any food in a small amount of fat.

GARNISH. Add accessory to any food product for color or eye appeal.

GRATE. Rub any food over a rough-surfaced instrument to break it into small pieces or shreds.

GRILL. Broil on an open-rack broiler.

LARD. Usually refers to covering meat with strips of fat or inserting fat or lard into meat with a larding needle.

LARDOON. The strips of fat or lard used for larding.

LEAVENING. Any ingredient which when added to a product will cause it to rise during cooking.

MARINATE. Place in oils, cream, milk, vinegar, French dressing, or lemon juice for a period of time to alter the flavor or soften the product.

MINCE. Cut up or chop fine.

PAN BROIL. Cook in dry, hot frying pan pouring off fat as it cooks out of meat and fish.

PAN FRY. Fry in small amount of fat.

PARBOIL. Partially cook in boiling or simmering water as a preliminary step to other methds of cookery.

PARE. Remove skin or rind from any food by cutting off with knife or other suitable instrument.

POACH. Cook any food in a simmering liquid.

PUREE. Press food through a sieve or food mill to remove cellulose from other food constituents.

ROAST. Cook with dry heat in an oven with fat side of meat up making it self-basting.

ROUX. Cooked mixture of fat and flour.

SAUTE. Cook in small amount of fat on top of stove.

SCALD. Heat a liquid to a point just below the boiling point.

SCALLOP. Bake cut-up food in white sauce, milk, or other liquid in the oven.

SCORE. Cut shallow slits in a food item across the top or in a pattern.

SHRED. Cut or tear in small pieces or strips.

SIFT. Run dry ingredients through a sifter to remove impurities and incorporate air into ingredients.

SIMMER. Cook at or just below the boiling point.

SKEWER. A thin wooden or metal pin used to secure meat, fish, or poultry together to facilitate the stuffing of poultry.

STEAM. Cook over water or in a steam-jacketed kettle where the cooking medium is steam.

STEEP. Soak tea or coffee in a boiling liquid that has been removed from the source of heat.

STEW. Cook in a liquid held at a simmering temperature.

STIR. Blend two or more ingredients using a circular motion with a spoon or mechanical mixer.

STOCK. Liquid in which meat, bones, fish, poultry, and vegetables have been cooked.

TOAST. Brown any food by subjecting it to direct heat.

TOSS. Mix lightly two or more ingredients.

TRUSS. Bind or fasten securely. This term is used mainly in regard to poultry.

WHIP. Beat rapidly in order to increase volume by incorporating air.

SEASONING AGENTS

Herbs and Spices

Herbs are often considered to be spices, though technically they differ, being plants without woody tissue that wither and die after flowering. Whereas herbal "spices" are likely to be prepared from leaves true spices are more often prepared from seeds, berries, kernels, fruits, roots, flower buds, or barks of tropical plants that contain aromatic oil of vegetable origin.

Both spices and herbs are used to season foods. Spices should be packed in small packages because the aromatic oils in spices evaporate when exposed to air for long periods. Ground spices generally keep for a year when stored in well-sealed containers.

Common Spices and Some of Their Uses

ALLSPICE. A favorite for seasoning pot roast. It is always present in spices used for mincemeat and pickling.

ANISE. Used for flavoring licorice products.

CARAWAY. Caraway seeds are used to flavor rye bread and cottage cheese and in pickling spices, chowder seasoning, cooked turnips, and sauerkraut.

CARDAMON. Used in pickling spices and in danish pastry.

CAYENNE PEPPER. Used particularly in meat dishes and gravies and for making seafood more appetizing.

CELERY SEED. Used in pickling spices and in salads.

CELERY SALT. Used in soup, meat loaves, and other food as desired.

CINNAMON. Cinnamon sticks are used in pickling spices and in hot tea and coffee. Ground cinnamon is used in baked goods, topping for pudding, hot cereal, and with stewed fruits.

CLOVES. Used in whole form or ground. They are used in cooked fruits and pickling spices and for studding meat such as ham.

CORIANDER. A favorite spice in making curry powder and for spicing fish.

CUMIN SEED. Used in the manufacture of sausage and in pickling spices.

GINGER. Ground ginger is best known as the flavoring for gingerbread and other baked goods. It is used for meats, pickling spices, puddings, and some soups. Ginger is also used in ginger ale.

MACE. The fleshy aril that grows around a nutmeg. It improves the flavor of fish and fish sauces, gravies, and meat stuffings. Because of its general use in pound cakes mace is known as a pound cake spice. It can be purchased whole (blades) or ground.

MUSTARD. Is available in three forms: Seeds, prepared mustard, and dry mustard. Mustard seeds are used in pickling spices and with certain vegetables such as boiled beets, cabbage, and sauerkraut. Prepared mustard is used in many ways, cold cuts, hot gravies, frankfurters, and hamburger. Dry mustard is used in different receipes.

NUTMEG. Ground nutmeg is used in baked goods, puddings, sauces, and vegetables.

PAPRIKA. Used to garnish salads, vegetables, meats, and fish and to give color to bland cheese and cream sauce for vegetables. It is used extensively in the manufacture of tomato catsup, chili sauce, and dressings for salads.

BLACK PEPPER. Black pepper is made from dried, unripe berries of a perennial vine, the piper nigrum. More pepper is consumed than any other spice. It enhances the flavor of many foods particularly meats, vegetables, soups, sauces, and casseroles.

POPPY SEEDS. Used extensively on bakery products. They are so small that approximately 900,000 seeds weigh only 16 oz. Poppy seeds yield a bland oil that is useful in cooking and for salad dressings.

SAFFRON. Gives an intriguing flavor to fancy rolls, biscuits, rice, chicken, and codfish. Saffron is a mild sedative.

SESAME SEED. Another name for sesame seed is benne seeds. Sesame seeds are used extensively in bakery products such as rolls, bread, and biscuits.

TURMERIC. Used in pickling spices and in making curry powders.

Use of Common Herbs

BASIL. A member of the mint family referred to as sweet basil. It is used in soups, meat pies, tomato cocktail, and with boiled meats used in making soup stocks.

BAY LEAVES. A favorite herb of most cooks because they impart a fine flavor to meats, potatoes, soups, and fish.

DILL. The fruit of dill is so small that it is called seed. Dill seeds are used in pickling and with fish, cabbage, turnips, and cauliflower.

FENNEL. Looks like celery but resembles anise in fragrance and taste. Fennel seeds are used in the manufacture of sweet pickles.

MAJORAM. A member of the mint family used with meats, fruit salads, and vegetables such as lima beans, peas, and string beans.

ROSEMARY. Gives a nice flavor to boiled potatoes, turnips, and cauliflower. It is also used in seasoning Italian sausages and poultry stuffings.

SAGE. The most popular herb in the U. S. It is used with pork and in stuffing for baked fish and poultry.

SAVORY. Used particularly for seasoning poultry and boiled fish.

THYME. The second most popular herb in the U. S. Many receipes specify a sprig of thyme which means one-half of a teaspoon of thyme powder.

Seasoning Hints

Use the following to add zest to the mentioned foods.

PICKLE JUICE. Left over from jars of sweet pickles gives cole slaw an unusually pleasing flavor when used instead of vinegar dressing.

SALT AND PEPPER. Can be added to food at the same time if you put both condiments in one large shaker.

CELERY SALT. Gives a delightful flavor to cracker crumbs in which oysters or shrimp are rolled for frying.

WHITE PEPPER. Not as strong as black pepper but is more aromatic. It is especially liked for meat products.

WEIGHTS AND MEASURES

Symbols for Measurement

t - teaspoon	pt - pint	oz - ounce
T - tablespoon	qt - quart	
c - cup	gal - gallon	

Table of Common Measurement Used in Food Preparation

3t = 1T	12T = 3/4c	8 oz = 1c or 1/2pt
4T = 1/4c	2c = 1pt	
8T = 1/2c	4c = 1qt	
2T = 1 liquid oz	4qt = 1gal	

Approximate Number of Cups or Units in a Pound of Certain Common Foods

These will equal 1 pound:

2 1/4c granulated sugar	4c grated cheese
4c bread flour	2c butter or fat
4 1/2c pastry flour	10 average eggs w/o shell

Standard Measuring Techniques

FLOUR. Flour is sifted once before measuring because flour tends to pack on standing. To measure a tablespoon or teaspoon of flour the spoon is dipped into the flour and the flour is leveled with the straight edge of a knife.

BAKING POWDER AND SPICES. These products are stirred lightly before measuring. A dry measuring spoon is dipped into the powder or spice and the spoon is brought up heaping full. The powder or spice is leveled with the straight edge of a knife.

LIQUIDS. Liquids are measured in a cup placed on a level surface. The cup is filled as full as possible without overflowing the content of the cup when it is lifted.

FAT. Solid fats should be removed from the refrigerator long enough before measuring to permit them to become softened because hard fats are difficult to measure accurately. The fat is pressed into the cup to force out the air space and is leveled off with the straight edge of a knife.

SUGAR. Granulated sugar is measured the same way as flour except that the sifting is omitted. Brown sugar is rolled to remove lumps and the sugar is packed firmly into the cup. Powered sugar is also rolled to remove lumps and the sugar is sifted before it is measured.

SYRUP, HONEY, OR MOLASSES. These items can be measured in a cup. Level off with the straight edge of a knife.

QUESTIONS

1. Basting food with highly seasoned sauce and roasting slowing is referred to as _____

2. Moistening food with liquid while cooking to add flavor and prevent the surface from drying out is called _____

3. To cover the entire outer surface of food with a dry material such as flour is called _____

4. To cut shallow slits in a food item across the top or in a pattern is to _____

5. The technique of measuring flour is _____

_____

_____

_____

_____

6. Tropical plants containing oils of vegetable origin are called

_____

7. The top or foilage of herbaceous plants is defined as _____

_____

8. Why should spices be packed in small packages? _____

_____

9. What spices are favorites for seasoning pot roast? _____

_____

10. Cardamom is used in _____ and _____

11. The three forms of mustard are _____, _____, and _____

12. Another name for sesame seeds is _____

13. What is the most popular herb in the U. S. ? _____

14. What is the second most popular herb in the U.S.? _____

15. Match the cooking terms with their definitions.

Barbecue	_____	Adds accessories to any food product for color or eye appeal.
Bread	_____	Cooked mixture of fat and flour.
Roast	_____	Cook at or just below the boiling point.
Roux	_____	Coat with a mixture such as dipping in beaten eggs and then in bread crumbs.
Simmer		
Garnish	_____	To roast slowly basting the food with a highly seasoned sauce.
Fry		
	_____	Cook with dry heat in an oven with the fat side of the meat up making it self basting.
	_____	Cook any food in a small amount of fat.

16. Match the seasoning agents with their definitions.

Anise	_____	A favorite in seasoning pot roast.
Celery salt	_____	Used to season Italian sausages and poultry stuffings.
Rosemary		

Allspice	_____	Used in soups, meat loaves, and other food as desired.
Dill	_____	Used for flavoring licorice products.
Saffron	_____	Used in making curry powders.
Turmeric	_____	Used for pickling and with fish, cabbage, turnips, etc.
	_____	Used for rolls, biscuits, and also is a mild sedative.

Technical Training

Cook Course

BLOCK II

9-5

Role of the Cook

(Part II)

April 1975

USAF SCHOOL OF APPLIED AEROSPACE SCIENCES
Department of Logistics Training
Lowry Air Force Base, Colorado

Cook Course
Lowry Air Force Base, Colorado

SW 3ABR62230-II-4
April 1975

PRINCIPLES OF FOOD PREPARATION

OBJECTIVES

a. Identify the two methods of meat cookery and describe the variations of each method.

b. Describe the preparation and submission of the Consumer Level Quality Audit Program (COLEQUAP).

c. Identify categories of vegetables and describe the methods of preparation for each category.

d. Identify the techniques used in the preparation of quick breads.

e. List the rules used when preparing a tossed salad.

f. Describe methods used for the preparation of miscellaneous food items.

INTRODUCTION

In this lesson we will be discussing the two methods of meat cookery and the variation of each. Next, we will describe the Consumer Level Quality Audit Program and its importance. Then we will identify the classification of vegetables plus suggested preparation methods to transform the vegetable structure and texture into a more nutritious finished product. Another area of importance is quick breads. Quick breads include such items as hot biscuits, cornbread, muffins, etc. These items are served hot to the customer. Another good starter to any meal is a crisp, cold salad. Salads have a tendency to sharpen the appetite. When well prepared a quality salad will highlight the importance of miscellaneous food preparation which will include such items as soups, sauces, gravies, cereals, beverages, thickening agents, sandwiches, and breakfast items.

Supersedes SW 3ABR62230-II, July 1974

INFORMATION

MEAT COOKERY

Cooking Meats

Meat is cooked primarily to kill certain microorganisms such as parasites, nematodes, and larvae of tapeworms that many flesh foods contain. In addition, cooking improves the flavor, color, and texture of meats. The less tender cuts of meat can be made tender and tasty by cooking; whereas, a tender piece of meat can be ruined by improper cooking. Selecting the proper cooking method and seasoning and applying the correct temperature can mean the difference between failure and success in cooking meat. Types of meat procured for the Armed Forces include fresh, prepared, cured, smoked, and frozen meats.

BEEF. Beef may be served in the form of steaks, roasts, pot roasts, stew, meat loaf, and hamburgers. Beef may be served rare, medium, done, or well done.

VEAL. Veal is the flesh of young calves. In comparison with beef, veal has a higher water content, lower fat content, and less juices. Veal contains a relatively high percentage of connective tissues. This has a pronounced bearing on the cooking of veal. Veal is served well done.

PORK. Pork is low in extractives. Its typical flavor is due largely to fat imbedded in the flesh. Fresh pork must always be cooked well done to kill trichinae, small nematode worms.

CURED AND SMOKED MEATS. Cured meats are those meats, such as corned beef, that have been treated with salt or some other curing agent. Smoked meats are cured meats that have been treated with smoke, which adds to the keeping qualities and flavor of the meat. Smoked meats include ham, bacon, and dried beef. Most dried beef is smoked, although some is only cured.

CANNED MEATS. Canned meats, including corned beef, ham chunks, and beef and gravy, are procured for the Armed Forces.

The proper cooking of meats depends a great deal on the temperature of the oven. Oven temperatures are controlled by regulators or thermostats so that meat can be cooked in the oven at even temperatures. If the range is not equipped with a regulator, an oven thermometer is used. The cooking temperature for meats is important. The higher the temperature at which meat is cooked, the greater the shrinkage. Low temperature

cooking generally means a smaller cooking loss, greater juiciness, more uniformity of cooking, and a longer time for cooking. Usually, meat cooked at a low temperature does not brown as much as meat cooked at a higher temperature. In the past, cooking directions specified cooking time in terms of cooking temperatures and minutes per pound. Today, whenever possible, cooking directions are given in terms of internal temperatures which is measured by the meat cooking thermometer inserted in the center of the cut. To a large extent, cooks judge the degree of cooking that a cut of meat has received by the color of the juices. This method is not an exact measure; but, in general, rare meat is reddish, medium shows some pink, and well done is gray or brown. Terms commonly used to describe cooking temperatures are as follows:

Very slow	250° to 275°F.
Slow	275° to 300°F.
Moderate	300° to 350°F.
Hot	350° to 425°F.
Very Hot	425° to 475°F.
Extremely Hot	475° to 550°F.

Handling Meat

Meat must be refrigerated as soon as it is received. Frozen meat should be thawed in a walk-in box or refrigerator with ample room between the pieces of meat to allow for proper circulation of air. The primary reason for thawing meat before cooking it is to shorten the cooking time. The cooking time shown in most recipes in AFM 146-12 is for thawed meats. Most meats, however, may be cooked in a frozen state if the temperature cited in the recipe is lowered and the cooking time is increased.

Dry Heat Cooking Method

Cooking is performed by two basic methods: dry heat and moist heat. These are used regardless of the product cooked. We will discuss these two cooking methods briefly in the following paragraphs and go into more detail when we cover the preparation of individual foods.

When cooking with dry heat, no liquid is added. In most cases the product itself supplies enough fat or juices to keep it from burning. Dry heat is used when cooking tender cuts of meat, fish, young poultry, some types of vegetables, and most pastry and bread products. Dry heat cooking procedures are explained in the following paragraphs.

ROASTING. One of the more popular cooking procedures is done in an oven. The food being roasted must be kept uncovered, otherwise the food will steam. The term roasting, although essentially the same as baking, generally applies to meat items, while baking applies to fish and dessert products.

BROILING. Cooking by direct heat over coals or under gas flame or electric heating units. This cooking procedure is used mainly in the preparation of meat, poultry, and fish. It is a very quick and simple method but is limited to the cooking of very tender meat cuts such as steaks and chops.

PAN OR GRIDDLE BROILING. Cooking on top of the range in a frying pan or on a griddle, using only the fat of the meat itself for grease.

PAN FRYING. Done with just enough added fat (grease) to cook the food. Only certain foods are adapted to pan frying. This cooking procedure includes such food items as eggs and other breakfast items. Do not use this cooking method unless it is prescribed by the recipe.

DEEP FAT FRYING. Cooking food by completely covering it with hot fat. In deep fat frying, foods are cooked quickly enough to prevent their absorbing any of the cooking fat. Holding the cooking fat at the correct temperature is very important when using this method. Too high a temperature causes the product to become hard and dry and too low a temperature allows the product to absorb the cooking fat. This method applies to seafoods.

RECOMMENDED DRY HEAT COOKING TEMPERATURES

Broiling----------450° to 500°F.

Roasting----------300° to 350°F.

Frying, deep fat or pan---375°F.

Moist Heat Cooking Method

Moist heat cooking is the process of cooking the food in a liquid, usually water. The moist heat cooking methods described in the following paragraphs are generally used for less tender cuts of meat and for most vegetables.

SIMMERING. Cooking in liquid that is held just below the boiling point. When the temperature is right for simmering, the bubbles of steam that rise from the bottom of the container disappear before reaching the surface of the water. This method applies to soups, sauces, gravies, fruits, and some dessert items.

BRAISING. Similar to simmering. The food is first browned in a small amount of fat and is then simmered in liquid until done. Braising provides long, slow cooking and is recommended for the less tender cuts of meat.

BOILING. The heating of a liquid until it bubbles. The bubbles rise to the surface and pass off in the form of steam. Cooks must remember that high temperature boiling will not cook foods better or faster than a slow boil. It is just a waste of fuel. The liquid is the same temperature either way.

STEAMING. Cooking food in the steam produced from boiling water or other liquids. This is an excellent way to cook most vegetables and foods of high starch content such as rice, macaroni, and other paste products.

PRESSURE COOKING. Done in a tightly closed, specially constructed cabinet or container that does not allow steam to escape. Steam builds up pressure in the cooker and provides a moist heat above the boiling temperature. The temperature is controlled by the amount of pounds of pressure allowed to accumulate.

RECOMMENDED MOIST HEAT COOKING TEMPERATURES

Boiling	212°F.
Simmering	185°F. to 210°F.
Braising	185°F. to 210°F.
Steaming	212°F.
Pressure Cooking	275°F.

Preparation of Individual Meat Items

As we have mentioned before, the dry heat method of cooking meat includes roasting, broiling, pan broiling, pan frying, and deep frying. Most unsmoked meats cooked in the oven by dry heat are said to be roasted. Smoked meats and ground beef cooked by the same method are said to be baked.

Meat for roasting is cut into 6 to 8 pound pieces and placed fat side up into the pan so that the fat gradually flows over the roast as it cooks, causing the roast to be self-basting which keeps the roast from excessively drying out. Much of the melted fat is absorbed by the lean meat, tenderizing it and adding to its richness and flavor. Beef roasts are tender cuts of meat. Seasoning does not penetrate more than one-half inch into the roast; however, the roast should be rubbed with salt and pepper. Although roasts are self-basting they may be basted in the natural juices. The roast is placed in a moderate oven and baked uncovered.

The use of a meat thermometer is recommended to determine the doneness of the roast; however, certain precautions should be taken. The thermometer should be inserted in the exact center of the meat or in the center of the heaviest portion of the roast. The thermometer bulb should not rest against the bone because bone is not a good conductor of heat and an incorrect reading will result. Also, if the bulb of the thermometer rests in a pocket of fat, an incorrect reading results because fat acts as an insulator. Meat with a heavy layer of outer fat takes longer to reach the desired internal temperature than a roast without fat; however, it also retains heat longer. Roasts should be removed from the oven before the desired internal temperature is reached because the internal temperature of the meat continues to rise for approximately 15 to 20 minutes after the roast is removed from the oven. Depending on the size of the roast, the temperature can rise as high as 5 to 10 degrees F.

Also, doneness of meat can be determined by the time-weight ratio method and the fork test. In the time-weight ratio method, a specific number of minutes of cooking time is allowed for each pound of meat. To a certain degree basic structure and fat covering affect this method of cooking. In the fork test, a steel fork is inserted into the center of the meat and then removed causing a certain amount of juices to exude from the meat. A red juice indicates it is rare, a pink juice indicates it is medium, and a brown juice indicates the meat is well done. This method is not always a good practice, because each time a fork is inserted into a roast and withdrawn, there is a loss of moisture and minerals, possibly resulting in undue drying out of the roast.

Roasts carve easier and provide more uniform portion if they are allowed to set from 15 to 20 minutes after they are removed from the oven. A general knowledge of anatomy is helpful when a person is carving. Correct tools kept in good condition must be used. Roasts should be trimmed in the kitchen not on the serving line. Meat should be carved across the grain and away from the carver. Portions should be stacked so that they can be removed from the stack on the serving line without breaking them up. The working area and cutting board must be kept sanitary.
See figure 1 for a beef roast recipe.

ROAST BEEF L. Meat, Fish, and Poultry No. 5

YIELD: 100 Portions EACH PORTION: 2 Slices (4 1/2 Ounces)

PAN SIZE: 18 by 24-inch Roasting Pan TEMPERATURE: 325° F. Oven

INGREDIENTS	WEIGHTS	MEASURES		METHOD
Beef, Boneless, oven roast	40 lb.....	.....	.....	1. Rub each roast with salt and pepper. 2. Place fat side up in pans without crowding. 3. Insert a meat thermometer into the thickest part of the main muscle away from bone and fat. DO NOT ADD WATER. DO NOT COVER. 4. Roast 2 to 4 hours depending on size of the roasts or until the meat thermometer registers the desired degree of doneness: 140° F.-rare; 160° F.-medium; 170° F.-well done. 5. Let stand 20 minutes before slicing.
Salt.....	4 oz.....	6 tbsp..	.....	
Pepper,black.....	.....	2 tbsp..	.....	

NOTE: 1. 60 lb beef, carcass, chilled A.P. will yield 40 lb beef, boneless.
2. If roasts are frozen, cooking time will be increased about 1 hour.

Figure 1

Meat is prepared for broiling or grilling by scoring the fat edges in several places, without cutting into the lean meat, to prevent the meat from curling. The meat is placed on a broiler pan and the pan is placed in the broiler about 4 to 6 inches from the source of heat, depending on the thickness of the meat. One side of the meat is broiled until the meat is half done. The meat is turned over and the cooked side is salted. The other side is broiled to desired doneness and seasoned. Then the meat is served immediately. Meat should never be seasoned before broiling because salt draws out the juices and retards browning, causing the meat to be cooked too long in order to develop the desired color. Pan-broiling and grilling are similar. Meat is panbroiled in a preheated skillet without adding fat or liquid. Fat rendered from the meat during broiling must be poured off as it accumulates in the pan. Grilling is done on a moderately hot, greased griddle.

Meat is deep fried by covering it with a coating such as bread crumbs and then immersing it in medium fat 350 degrees F. The pieces of meat must be small enough so that they will cook by the time they are brown. Recipes for deep frying certain meats should be followed.

Moist heat methods of cooking include simmering, braising, boiling, steaming, and pressure cooking. Moist heat cooking is used with all less tender cuts of meat because of its tenderizing effect. One factor to be remembered is that when cooking meats in liquids, the liquid must be kept at a simmering temperature. Cooking at a boiling temperature prolongs the cooking time and toughens the meat. It also destroys the flavor, food value, and shape of the meat. The most common methods of cooking meat by moist heat are stewing and braising. Stewing, properly called simmering and improperly called boiling, is a method of cooking food in a liquid on top of the stove. The liquid in which meat has been cooked is a stock. More liquid is used for stewing than for braising. Meat is braised when it is browned in a small amount of fat. A small amount of water is added after browning. The meat is then cooked slowly in a covered container on top of the stove, in the oven, or in a steam-jacketed kettle. The recipe may or may not call for the meat to be rolled in seasoned flour before browning. There are several variation of braised meats. A pot roast is a large, less-tender cut of meat that is cooked by braising. A fricassee is made of small braised pieces of meat. Swiss steak and meat casseroles are also considered braised meats. Another method of cooking with moist heat, sometimes used for less tender cuts of meat, is steam pressure cooking. In moist heat cookery the meat should be seasoned during the cooking process because the seasoning will cook into the meat and enhance the flavor.

Canned meat such as beef and gravy, ham chunks, pork and gravy, or corned beef can be made into highly nutritious, palatable, and acceptable dishes. Items such as beef and gravy or pork and gravy should be defatted before combining them with other foods. This defatting can be done by placing the can of meat in boiling water for approximately 20 minutes or by opening the can and heating the contents in a suitable container in the oven. The rendered fat is drained off and can be used in sauces or other dishes.

TURKEYS. Are prepared for roasting by removing the giblets from the cavity and washing the bird inside and out under cold water. It is then dried with a clean cloth or paper. After this the cavity is rubbed with a small amount of salt and pepper. The loose skin is pulled back over the back bone and the wings are folded over to keep the neck piece in place. The end of the legs are inserted through the band at the tail end of the bird. If the band is broken the bird is tied or wired and made as compact as possible. The bird is then brushed with melted fat or oil and placed in a shallow roasting pan with breast side up. A rack should be placed in the bottom of the roasting pan providing added protection from burning and better circulation of hot air. The bird is placed in an oven preheated to 325 degrees F. and basted occasionally with melted fat. If butter is used for basting the bird, care must be taken to prevent excessive browning. Roasting is continued until the bird is tender and the breast is golden brown. A sheet of aluminum foil may also be placed loosely over the bird to prevent excessive browning. Listed below are three methods of testing for the doneness.

1. Meat thermometer
2. Joint test
3. Time-weight ratio

See figure 2 for a time table for baking beef, pork, veal, and poultry.

CUTS	AVERAGE WEIGHT OR THICKNESS	OVEN TEMPERATURES	APPROXIMATE COOKING TIME
Pot Roast	3 to 5 pounds	325° - 350° F.	2 - 3 hrs.
Pot Roast	5 to 8 pounds	325° - 350° F.	3 to 4 hrs.
Oven Roast	4 to 6 pounds	325° - 350° F.	2 1/2 - 3 1/2 hrs.
Oven Roast	6 to 8 pounds	325° - 350° F.	3 1/2 - 5 hrs.
Meat Loaf	3 to 4 pounds	300° - 350° F.	2 1/2 - 3 1/2 hrs.
Rib Roast	6 to 8 pounds	300° - 325° F.	2 1/2 - 3 hrs.
Ham, Fresh, Boneless	8 to 10 pounds	325° - 350° F.	4 1/2 - 6 hrs.
Rolled Shoulder	4 to 6 pounds	325° - 360° F.	3 1/2 - 4 1/2 hrs.
Pork Loin String-Tied	3 to 6 pounds	325° - 360° F.	3 - 4 hrs.
Veal Roast	4 to 6 pounds	300° - 350° F.	2 1/2 - 4 hrs.
Veal Loaf	3 to 4 pounds	300° - 325° F.	2 1/2 - 3 1/2 hrs.
Chicken	3 to 5 pounds	325° - 350° F.	2 1/2 - 3 1/2 hrs.
Turkey	15 to 22 pounds	325° - 350° F.	4 1/2 - 6 hrs.
Turkey, Rolled	6 to 10 pounds	325° - 350° F.	4 1/2 - 5 1/2 hrs.

Figure 2. Time Table for Cooking Beef, Pork, Veal, and Poultry

QUESTIONS

1. The primary purpose of cooking meat is to _____

_____

2. Veal should be cooked to what degree of doneness? _____

3. The typical flavor of pork is due largely to _____

_____

4. Meat cooked at high temperatures causes _____

_____

5. The dry heat method of cooking meats include _____, _____, _____, and _____

6. The recommended method of testing the doneness of a beef roast is to use a _____

7. In the moist heat cooking method why should the meat be seasoned during the cooking process? _____

_____

8. Defatting canned meat can be accomplished by _____

_____

9. After a turkey is prepared for cooking it should be placed in a preheated oven at what temperature? _____

10. At what temperature should an oven roast be cooked if it weighs 6-8 pounds? _____

SEAFOOD COOKERY

The term "seafood" refers to shellfish and finfish. There are many other kinds of seafood, but we will only discuss the kinds you will prepare in the dining halls. They are breaded fish portions, breaded shrimp, flounder, and scallops, which are all frozen. There is canned seafood also.

Seafood is a valuable source of protein. It can be baked, poached, fried, stuffed, or made into croquettes, casseroles, and salads. Because of the fat content, structure of the connective tissues, and juices, seafood can be easily overcooked. This decreases the palatability and acceptability of the food.

Finfish

The two principal forms of finfish served in the Air Force are fresh frozen and prefabricated frozen. The reason the Air Force consumes more frozen seafood is because it can be handled, stored, prepared, and cooked easily. Fish steaks are cross sections or cuts of a large dressed fish. Fish fillets are practically boneless meaty sides of fish cut lengthwise away from the backbone. Fresh fish should arrive in a frozen state without signs of thawing or refreezing. They should be kept solidly frozen until ready for use.

Because fish lack connective tissue a moist heat method of cooking is not used for a tenderizing effect, but for variation. The most common method of cooking finfish is the dry heat method that includes baking, broiling, and frying.

Fish are sufficiently cooked when the layers of flesh separate easily and tend to flake apart under slight pressure. This is called the flake method.

Leftover seafood can be used for soups and salads but should not be used if leftover for more than 24 hours.

BAKING. Fish of most sizes can be baked. Baking is the best method for cooking fat fish because it brings out the flavor and develops a good color. The fish should be thoroughly cleaned and brushed on both sides with melted fat before being placed in the oven. The melted fat helps to prevent the fish from drying out and aids in the development of flavor and color. Fish steaks

and fillets should be cut into serving portions, placed skin side down in a lightly-greased, shallow pan, and baked in an oven with a temperature of 375 degrees F. for 15 to 20 minutes, depending upon thickness of the pieces. The fish may be covered with a sauce during baking to help prevent it from drying out.

BROILING. Whole fish can be broiled if they are not too thick. Split fish, fish steaks, and fillets can be broiled satisfactorily. The broiler should be preheated for approximately 10 minutes, and the exposed side of the fish should be brushed with melted fat or French dressing. The fish should be placed in a lightly-greased pan and the pan placed approximately 6 inches from the source of heat. Split steaks, steaks less than 1 inch thick, and fillets are placed from 3 to 5 inches from the heat, depending upon the thickness of the pieces. Whole fish should be turned once. Split fish and fillets need not be turned. If split fish or fillets are to be turned, they should be placed skin side up and cooked for approximately 5 minutes before they are turned. The fish is basted two or three times with seasoned melted fat and broiled until brown. Broiling fillets and steaks takes about 10 minutes, depending upon the thickness of the pieces. Overcooking must be avoided.

PANFRYING AND DEEP FRYING. Small, whole fish or serving-sized pieces of steaks or fillets are prepared for panfrying by dipping them into milk, or egg and milk mixture, and dredging them with a mixture of flour that is seasoned with salt and pepper, fine bread crumbs, or any other suitable breading material. The fish pieces are then placed in one-fourth to one-half inch of fat that has been heated to 365 degrees F. in frying pans and are cooked for 3 to 4 minutes on each side until they are golden brown. Deep frying and panfrying are done the same way, except in deep frying enough fat is used to cover the pieces. The pieces are cooked until golden brown, which may require 5 to 8 minutes. The cooked pieces are drained and kept hot until served. See figure 3 for a fried fish recipe.

Shellfish

OYSTERS. Oysters should be heated only to a serving temperature because they need no cooking to make them tender. Overcooking makes oysters tough. Oysters may be fried, scalloped, used in oyster stew, or eaten raw.

SHRIMP. Overcooked shrimp are tough and shrunken. Shrimp are best when cooked in a stock that is seasoned with bay leaves, pepper corn, celery, and salt; simmered in a pot for 4 to 8 minutes; and removed from

the stock immediately to stop any further cooking. After being shelled and deveined, shrimp may be placed in the chilled stock for a time to improve their flavor. Cooking directions on the package of frozen shrimp should be followed. Cooked shrimp can be used in salads, combined with other foods in casseroles, served as an appetizer or cocktail with a spicy sauce, or dipped in a batter, and then fried quickly.

CANNED OR PROCESSED SEAFOOD. Canned or processed seafood offers a change and a variety in the Air Force diet. Recipes are given in AFM 146-12 to include salmon cakes, salmon croquettes, salmon loaf, scalloped salmon and peas, baked tuna and noodles, and tuna salad. Salmon must be drained, skin and bones removed, and flaked before it is combined with other ingredients. Tuna must be drained and flaked.

L. Fish No. 109

FRIED FISH

YIELD: 100 Portions			EACH PORTION: 4 1/2 Ounces
INGREDIENTS	WEIGHTS	MEASURES	METHOD
Fish fillets or steaks, thawed	30 lb....	....	1. Separate fillets or steaks; cut into 4 1/2 oz portions if necessary.
Bread crumbs, dry Flour, wheat, hard Salt..... Pepper, black.....	2 lb.... 1 lb 12 oz 5 oz.....	1 1/2 qt. 1 1/2 qt. 1/2 cup.. 1 1/2 tbsp	2. Dredge fish in mixture of crumbs, flour, salt, and pepper; shake off excess.
Shortening.....	2 lb.....	1 qt.....	3. Fry fish in shallow fat (1/8 inch deep). Brown on one side; turn carefully and brown on the other side. 4. Drain well on absorbent paper.

NOTE: 1. Frying time for fish will vary with type and thickness of fish.

2. In Step 3 fish may be cooked on well greased 350° F. griddle.

3. If desired, 2 lb (1 1/2 qt) corn meal may be used in place of bread crumbs in Step 2.

Figure 3.

QUESTIONS

1. Seafoods are easily overcooked because of the lack of _____

_____

2. Leftover seafood can be used for _____ and

_____.

3. Two principal types of shellfish are _____

_____

4. When shrimp are overcooked they become _____ and _____

5. Name four ways in which canned or processed seafood may be used in the Air Force diet.

_____

_____

_____

_____

CONSUMER LEVEL QUALITY AUDIT PROGRAM (COLEQUAP)

Purpose

The Consumer Level Quality Audit Program (COLEQUAP) is a subsistence management program that is used to audit, at base level, subsistence items. This program will provide a system to audit selected subsistence items in the Air Force inventory as follows:

1. The quality and condition, food service adaptability, consumer acceptance, packaging and packing, and compliance with specification requirements.

2. Provide feedback information from the consumer to management.

3. Document and report on unsatisfactory subsistence items.

4. Serves as a management tool to obtain optimum food quality, maximum use of all subsistence, and reflect dollar savings.

Preparation

Each quarter, the Air Force Services Office (AFSO) determines which food items are to be audited. This audit is actually conducted monthly on selected food items and then is submitted as a quarterly report.

It is the responsibility of Food Service personnel and the Veterinary Service to conduct and prepare the quarterly report.

Submission

When the audit reports are completed by Food Service personnel and the Veterinary Service, they are submitted to the Air Force Services Office.

The reports are then analyzed and evaluated by Air Force Management to improve the quality and acceptance of food delivered and served in dining hall facilities.

Questions

1. What is the purpose of the Consumer Level Quality Audit Program (COLEQUAP)?

_____

_____

_____

2. Who determines which food items will be audited on a quarterly basis?

_____

3. Who has the responsibility to conduct and prepare the quarterly report?

_____

4. When the audit reports are completed by Food Service personnel and the Veterinary Service, they are submitted to _____

_____

VEGETABLE AND FRUIT PREPARATION

Vegetables

The nutritive value of vegetables are important to the human diet and daily food requirements. Proper preparation and cooking transforms the structure and texture of vegetables, making them more desirable and attractive in appearance. Different methods of cooking the same vegetable eliminates repetition and provides variety. Vegetables contribute much to the enjoyment of the meal.

CLASSIFICATIONS. General classifications of vegetables are:

- o Leafy vegetables to include spinach, lettuce, and kale.
- o Bulbs, roots, and tubers, to include onions, carrots, turnips, and potatoes.
- o Fruit-type vegetables to include tomatoes, cucumbers, and eggplant.
- o Flowers, buds, stems, and shoots to include cauliflower, broccoli, celery, and asparagus.

PREPARATION OF FRESH AND CANNED VEGETABLES. In preparation of fresh vegetables for cooking, one or more of the following operations may be performed: cleaning, paring, crisping, slicing, dicing, scrapping, or shredding. All fresh vegetables must be thoroughly washed in drinkable water before they are cooked. Leafy vegetables should be trimmed and undesirable leaves and coarse stems removed. Green leaves should be washed in several waters to remove grit and sand. Vegetables should be peeled as thinly as possible to prevent destruction of edible portions and loss of minerals that are abundant under the skin of vegetables. The method of cooking determines whether the skins should be removed from roots and tubers. Vegetables should be kept crisp and cool by placing crushed ice between layers of prepared vegetables, covering them with a damp cloth, and refrigerating them until time for cooking or serving.

In cooking vegetables it is simply a matter of remembering and applying a few simple facts about the nutritive elements and the preservation of colors and flavors to make the end product attractive, palatable, and nutritive. Vegetables may be grouped as green, red, yellow, white, or strong-juiced. They may be boiled, steamed, baked, braised, or fried.

Listed below are some general rules for cooking fresh vegetables:

o Bake, steam, or boil vegetables in their skins whenever possible and practicable.

o Add vegetables to fresh, boiling, salted water.

o Cook as quickly as possible.

o Keep water at a gentle boil.

o Use a minimum of water except for those that may require an excess of water, such as turnips.

o Use enough water to effect complete evaporation by the time the vegetables are tender, guarding against scorching.

o Never overcook vegetables.

o Serve vegetables as quickly as possible after cooking. If vegetables must be held over for a period before serving, they should be cooked and reheated rather than be kept warm on a stove.

o Season and serve vegetables when they are tender.

o Cook small quantities of vegetables at one time.

o Follow the standard recipe.

PREPARATION OF FROZEN VEGETABLES. Frozen vegetables should be handled and cooked as follows. Packages of frozen vegetables should be inspected to determine if the vegetables have been thawed and refrozen. A sheet of ice on the bottom of a package indicates possible refreezing. Frozen vegetables should be stored at 0 degrees F. or lower. They will defrost at 35 degrees to 40 degrees F. overnight and when defrosted will spoil as quickly as fresh vegetables. Vegetables should be kept frozen until they are ready for use. Packages should never be opened to hasten defrosting. Storage directions are printed on the package and should be followed as closely as possible. Frozen blocks of vegetables can be halved or quartered to reduce cooking time. Frozen vegetables, except corn on the cob, should be dropped into boiling, salted water unless otherwise directed. If frozen corn on the cob is not thawed before it is cooked, the kernels tend to become overcooked. If the cob remains cold or frozen, this causes the kernels to

cool before being served at the proper temperature. Spinach and tender leaf vegetables should be thawed before being placed in a small amount of salted water. Frozen vegetables require approximately one-third to one-half of the time that is required for cooking fresh vegetables because of the blanching process and the tenderizing effect of freezing on vegetables. The cooking time begins when the water reaches the second boil. Frozen vegetables should be cooked at a gentle boil until tender. They are cooked and served as fresh vegetables. When the cooking is completed the vegetables are drained, seasoned, and served. The drained cooking liquid should be kept for use in soups and sauces. See figure 4 for a vegetable recipe.

PREPARATION OF DEHYDRATED VEGETABLES. Dehydrated vegetables are fresh vegetables from which water and inedible portions have been removed either naturally or artificially without destroying food value, flavor, or structure. They must be handled carefully because they crush easily. Dehydrated vegetables may be reconstituted by several methods but the manufacturer's instructions on or inside the carton should be followed for best results. Some dehydrated vegetables require no cooking; however, most dehydrated vegetables are started in cold water which is brought to a boil, the heat is then reduced, and the vegetables are simmered until tender. Two dehydrated vegetables most commonly used by the Air Force are potatoes and onions.

CANNED VEGETABLES. Canned vegetables are cooked vegetables with essentially the same food value as cooked fresh vegetables; however, the high temperature required for processing them causes some loss of vitamins. Cans should be inspected before they are opened for defects such as leakers or swellers and for spoilage. Spoiled canned vegetables can cause food poisoning. Juices should be used in soups and sauces because they contain most of the sugars, minerals, vitamins, and soluble proteins. Canned vegetables are seasoned to taste with butter, bacon drippings, or margarine. They should be heated to a serving temperature but never overcooked. The liquid may be thickened and served hot as a sauce with the vegetables.

Fruits

Fruit may be used in many ways. In addition to being served fresh, fruit can be made into such dishes as pies, salads, and desserts. Your patrons will not tire of fruit, especially if they have a little variety. Fresh fruit must be pared and cut for cooking. Don't pare it until just before cooking. If served raw, do not pare until just before serving time.

SOUTHERN STYLE GREENS

Q. VEGETABLES No. 29

YIELD: 100 Portions

EACH PORTION: ½ Cup

INGREDIENTS	WEIGHTS	MEASURES		METHOD
Greens, frozen, mustard or turnip	20 lb			1. Add partially thawed greens, bacon, and salt to water.
Salt	2 oz	3 tbsp		2. Bring to a boil and boil gently, uncovered, 30 minutes or until tender. Drain.
Water, boiling		2 gal		
Bacon, chopped	2 lb	1½ qt		
Pepper, black		1½ tsp		3. Cut through greens several times and sprinkle with pepper.

NOTE: For ease in serving, use a cook's fork.

VARIATION

1. SWEET SOUR GREENS: Sauté 10 oz (2 cups) chopped, dry onions in 4 oz (½ cup) butter or margarine until light yellow; add 8 oz (1 cup) granulated sugar and 1½ cups vinegar. Cook 3 minutes; add to greens in Step 3. Simmer about 3 minutes to blend flavors.

Figure 4.

Pared fruit loses moisture and becomes discolored if it is exposed to the air for any period of time. When necessary to pare fruit in advance of the meal time, cover with a thin syrup or lemon juice to prevent discoloration. Pare fresh fruit as thin as possible since most of the food value is concentrated near the skin.

Frozen fruit saves time and effort on the part of the cook because the fruit may be kept for long periods of time if proper refrigeration is available, there is no waste, and it takes up very little space. Frozen fruit should be kept frozen until just prior to use.

Canned fruit has the greatest nutritive value if consumed immediately after it is removed from the can. When fruit must be stored after being opened, the syrup should cover the fruit and it should be placed under refrigeration in a covered container. Canned fruits may be served in many ways; and, since a variety is always available, there is no reason for fruit servings to become monotonous.

QUESTIONS

1. Vegetables are grouped into how many general classifications?

_____

2. Name three leafy type vegetables.

_____

_____

_____

3. Name three fruit type vegetables.

_____

_____

_____

4. Frozen vegetables should be stored at what temperature?

_____

5. Two dehydrated vegetables most commonly used by the Armed Forces are _____ and _____

6. Canned vegetables are seasoned to taste with _____,

_____, and _____

7. When does canned fruit have its greatest nutritive value?

_____

PREPARATION OF QUICK BREADS

Quick breads, which are leavened by baking powder or baking soda, include cornbread and various types of biscuits and muffins. Biscuits are made from dough; muffins and corn bread are made from a batter. Dough contains more flour than liquid and is of a consistency that can be kneaded and rolled. Batter is of a softer consistency than dough and can be poured, panned by hand, or dropped from a spoon. Because quick breads should always be served hot, they are baked just prior to serving.

Dough Method

Dough is defined as a sour mixture of water and other ingredients worked into a soft, thick mass for baking into bread. We shall talk about quick bread dough which has the following ingredients:

- o Flour, hard wheat
- o Liquids - water, milk, or buttermilk
- o Eggs, fresh
- o Sugar, granulated, white
- o Shortening - vegetable or fat
- o Salt
- o Leavening - baking powder or soda

Mixing

To prepare dough the shortening is blended with the dry ingredients and the liquids are added to the mixture. If the dry ingredients and shortening are overblended, the product will be too tender. If the liquids and dry ingredients are overmixed, the product will be tough. It is advisable to cut the shortening into the dry ingredients or to rub the shortening and dry ingredients together very lightly with the fingers. Flour particles that are coated with too much fat will resist absorbing the moisture necessary for proper mixing. The liquid and dry ingredients should be mixed only until all ingredients are incorporated.

Batter Method

Batter is defined as a thin mixture of flour and other ingredients used in making pan cakes, waffles, and cakes. When you use cornmeal instead of flour, it can be used to make corn bread, muffins, or hush puppies. Batter ingredients are as follows:

- o Flour
- o Cornmeal
- o Liquids - water, milk, or buttermilk
- o Eggs, fresh
- o Sugar, granulated, white
- o Shortening - vegetable or fat, melted
- o Salt
- o Leavening - baking powder or soda

Mixing

In mixing batter, shortening is melted and stirred into dry ingredients. Properly mixed batter will appear to be lumpy and undermixed; however, as long as no dry ingredients are visible and the moisture is thoroughly distributed, the batter is properly mixed.

Baking

It is important that quick breads be baked at the proper oven temperature and for the proper length of time. Breads that are overbaked or baked in an oven that is too hot will become dry and too brown. Breads that are underbaked or baked in an oven that is not hot enough will have a pale crust color. If muffins are baked in an oven that is too hot, they will peak and have an irregular shape. If baked in an oven that is not hot enough, they will be crumbly. Follow the baking time and temperature specified in the recipe. See figure 5 for a biscuit recipe.

BAKING POWDER BISCUITS

YIELD: 100 Portions (4 Pans) EACH PORTION: 2 Biscuits

PAN SIZE: 18 by 26-inch Sheet Pan TEMPERATURE: 450° F. Oven

PER CENT	INGREDIENTS	WEIGHTS	MEASURES		METHOD
47.65	Flour, wheat, hard, sifted	10 lb	2½ gal		1. Mix and sift dry ingredients together.
2.90	Milk, nonfat, dry	9¾ oz	2⅛ cups		
2.09	Baking powder	7 oz	1 cup		
.90	Salt	3 oz	4½ tbsp		
15.49	Shortening	3 lb 4 oz	7½ cups		2. Blend shortening into dry ingredients until mixture resembles coarse crumbs.
30.97	Water	6 lb 8 oz	3¼ qt		3. Gradually add water and mix only enough to form a soft dough.
100.00		21 lb			4. Place dough on lightly floured board. Knead lightly about 1 minute or until dough is smooth. 5. Roll out to a uniform thickness of ½ inch. 6. Cut with 2½ inch floured biscuit cutter. Place biscuits in pans. 7. Bake 15 to 20 minutes or until lightly browned.

NOTE: 16 lb Biscuit Mix may be used to make baking powder biscuits. Mix according to instructions on container.

Figure 5.

QUESTIONS

1. Name three types of quick breads.

_____

_____

_____

2. Name three of the ingredients used in making dough.

_____

_____

_____

3. A thin mixture of flour and other ingredients is used in making _____, _____, and _____

4. What will cause muffins to have an irregular shape when baked?

_____

5. What causes muffins to become crumbly when baked? _____

_____

PREPARATION OF BAKERY PRODUCTS

Cake

Cake is a baked batter made from flour, sugar, salt, leavening, shortening, milk, eggs, and flavoring. The ingredients are combined to produce a fluffy, fine-grained product. The general relationship of the ingredients that must be brought into balance differs according to the type of cake. Quality cakes depend on the use of high quality ingredients, proper mixing and panning methods, correct batter temperature, correct baking time and temperature, and other similar factors. The three basic types of cakes are listed below.

BATTER-TYPE CAKES. Batter-type cakes are made from a mix that contains a high percentage of shortening. Plain cake, white cake, gingerbread, spice cake, and fruit cake are examples.

FOAM-TYPE CAKES. Foam-type cakes are made from a mix that contains no shortening. (Butter sponge cake is the exception). Foam-type cakes are more difficult to make than batter-type cakes because proper texture and volume depend on the incorporation of air in the mix. Examples of foam-type cakes are angel food, sponge, and jelly roll.

CHIFFON-TYPE CAKE. Chiffon-type cakes is a variation of foam-type cakes but they contain some shortening or salad oil.

Cookies

Cookies, in combination with ice cream, puddings, or fruit, make a good dessert. Because of their excellent keeping qualities, they may be made in advance of serving. Cookies are of two general types: Soft cookies and hard cookies.

Characteristics of good soft cookies are moistness and softness. Characteristics of good hard cookies are crispness and brittleness. Whether a cookie is soft or hard depends on the proportions of the four basic ingredients which are flour, sugar, shortening, and liquid (milk and/or eggs). Leavening agents, which are added to most cookies, have an effect on the size, color, and eating qualities. Other ingredients are added to provide flavor and texture. Soft cookies contain a maximum amount of moisture and may require a greater percentage of eggs to produce the necessary structure. Hard cookies contain a minimum amount of moisture.

Pies

Quality pies depend on two things: a proper filling and a tender crust. Pies may be the double-crust type, the one crust (custard) type, or the prebaked-shell type. Fillings used in double and one-crust (custard) pies are baked in the crust at the same time the crust is baked. Fillings used in prebaked shell pies are precooked and then placed in the shells. Pies prepared in prebaked shells are often topped with meringue or whipped topping. See figure 6 for a recipe for cookies.

PEANUT BUTTER COOKIES H. DESSERTS (COOKIES) No. 24

YIELD: 100 Portions (8 Pans)				EACH PORTION: 2 Cookies
PAN SIZE: 18 by 26-inch Sheet Pan				TEMPERATURE: 375° F. Oven
INGREDIENTS	WEIGHTS	MEASURES		METHOD
Eggs, whole	1 lb 4 oz	2½ cups (12 eggs)		1. Put ingredients into mixer bowl in order listed. Using beater at low speed mix 1 to 2 minutes or until smooth. Scrape down bowl once during mixing.
Water		1¼ cups		
Peanut Butter	1 lb 12 oz	3 cups (1-No. 2½ cn)		2. Divide dough into 10 pieces, about 1 lb 5 oz each. Form into rolls; slice each roll into 20 pieces.
Vanilla		2 tbsp		
Sugar, brown	2 lb	1⅓ qt		3. Place in rows, 4 by 6, on ungreased pans and, using a fork, flatten to ¼ inch thickness.
Sugar, granulated	2 lb	4½ cups		
Flour, wheat, hard, sifted	4 lb	1 gal		4. Bake 14 minutes or until lightly browned.
Baking powder	2 oz	4½ tbsp		5. Loosen cookies from pans while still warm.
Salt		1 tbsp		

Figure 6.

QUESTIONS

1. Name three basic types of cakes.

_____

_____

_____

2. What are the characteristics of good soft cookies?

_____

3. What are the characteristics of good hard cookies?

_____

4. What are the four basic ingredients used in making cookies?

_____

_____

_____

_____

5. Quality pies depend on

_____

_____

PREPARATION OF SALADS AND DESSERTS

With the many salad type food items and improved dressings available, salads have become an integral part of most meals and in some cases are considered complete meals in themselves.

Salad Preparation

The following basic rules for salad making should be followed in preparation of salads.

Vegetables and salad greens must be crisp. Mix salad ingredients lightly. Greens should be torn, not cut, if they are to be broken up for use in a tossed salad. Potato salad should remain in the refrigerator long enough to absorb the flavor of the dressing. Molded salads must remain in the refrigerator until they become firm, but other salads should be served promptly. Salad dressing should not be added to crisp, green salad until it is ready to serve. Slice fruits shortly before serving to avoid discoloration. Use various types of salad dressing to add variety. Lettuce and greens should not be marinated as they will wilt. Meat, vegetables, or fish for salad should be diced rather than run through a food chopper. See Figure 7 for an example of a salad recipe.

MOLDED GELATIN SALAD. The following factors contribute greatly to the successful molded or bulk gelatin salad. Flavored gelatin powder needs only to be dissolved before molding and setting. Gelatin must be of a "syrupy" consistency before well-drained fruit is added; otherwise, the fruit will float. Make sure that the gelatin is thoroughly set before taking it from the mold. Dip mold quickly in warm water and shake gently to remove salad.

Desserts

Desserts are the final touch that often determines the success of a meal. Pastries are discussed in another section of this lesson; therefore, we will limit this discussion to puddings, ice cream, and gelatin desserts. See Figure 8 for an apple crisp recipe.

PUDDING. A good pudding should be fairly rich and contain plenty of milk, eggs, and, in some cases, fruit. AFM 146-12 contains many fine pudding recipes along with the sauces that accompany them.

CABBAGE AND SWEET PEPPER SALAD

YIELD: 100 Portions				EACH PORTION: ⅔ Cup
INGREDIENTS	WEIGHTS	MEASURES		METHOD
Cabbage, fresh, shredded	18 lb	6 gal		1. Toss cabbage and peppers together lightly.
Peppers, sweet, fresh, finely chopped	5 lb	1 gal		
French Dressing		3 cups		2. Combine ingredients; mix thoroughly.
Pepper, black		1 tsp		3. Pour dressing over cabbage mixture; toss lightly.
Salt	4 oz	6 tbsp		
Sugar, granulated	8 oz	1 cup		4. Allow to stand 15 minutes before serving.

NOTE: 1. French Dressing. See Recipe Card M-58.
2. 23 lb fresh cabbage A.P. will yield 18 lb shredded cabbage.
3. 6 lb fresh sweet peppers A.P. will yield 5 lb finely chopped peppers.
4. 13 oz dehydrated green peppers may be used in Step 1. Reconstitute according to instructions on Recipe Card A-11. Drain before using.

Figure 7.

APPLE CRISP

YIELD: 100 Portions (2 Pans) | EACH PORTION: 1 Piece

PAN SIZE: 18 by 26-inch Sheet Pan | TEMPERATURE: 375° F. Oven

INGREDIENTS	WEIGHTS	MEASURES		METHOD
Apples, canned	20 lb 12 oz	2¼ gal (3-No. 10 cn)		1. Arrange 4½ qt apples in each greased pan. 2. Sprinkle juice and rind over apples.
Juice, lemon		½ cup		
Lemon rind, grated		1 tbsp		
Sugar, granulated	2 lb 12 oz	1½ qt		3. Combine dry ingredients; sprinkle half over apples in each pan.
Starch, pregelatinized	4 oz	⅞ cup		
Cinnamon, ground		3 tbsp		
Salt		1 tbsp		
Sugar, brown	3 lb	2 qt		4. Combine ingredients; blend to form a crumbly mixture. Sprinkle half the mixture evenly over apples in each pan. 5. Bake 40 minutes or until top is browned. 6. Cut each pan 6 by 9.
Flour, wheat, hard, sifted	2 lb	2 qt		
Baking powder		1⅔ tsp		
Baking soda		1¾ tsp		
Salt		1 tbsp		
Butter or margarine, softened	2 lb	1 qt		

NOTE: 1. 3 lb (1½-No. 10 cn) dehydrated apples may be used in Step 1. Combine apples with 2 qt water, cover, bring to a boil. Reduce heat; simmer 15 minutes or until tender. Omit starch in Step 3.
2. 12 oz lemons A.P. (3 lemons) will yield ½ cup juice.
3. In Step 3, an equal amount of cornstarch may be substituted for pregelatinized starch.
4. In Step 4, 3 lb granulated sugar may be substituted for 3 lb brown sugar.

VARIATIONS

1. CHEESE APPLE CRISP: In Step 4, add 1 lb (1 qt) grated cheddar cheese to flour sugar mixture.
2. CRUNCHY APPLE CRISP: In Step 4, use 1 lb 4 oz (2 qt) rolled oats and 1 lb 4 oz (1¼ qt) sifted hard wheat flour.

Figure 8.

GELATIN. Most gelatin desserts are easily made but recipe instructions must be carefully followed, especially when figuring the ratio of water to gelatin. Although gelatin was mentioned earlier in salad preparation, it can be used as a dessert. The preparation is the same for both salad and dessert.

ICE CREAM. Stateside ice cream is normally purchased from local vendors. At some overseas bases and sites, ice cream is made by assigned food service personnel. If ice cream powder is available and used according to the instructions on the package, it will produce a suitable substitute for the fresh product.

QUESTIONS

1. Name one of the basic rule for salad making.

_____

2. Molded salad must remain in the refrigerator until it becomes

_____

3. Lettuce and greens should not be marinated as _____

_____

_____

4. A good pudding should be fairly rich and contain _____

_____

_____

Soups

Soups are a very important first or second course dish. This easy-to-prepare and highly nutritious dish is the mainstay on many Air Force menus and is especially well received during cold weather. Soups are classified into two main groups: Thin or clear and thickened or creamed. Thin soups include bouillon, consomme, and broth. Thickened soups include puree, chowder, vegetable, and gumbo. See Figure 9 for a vegetable soup recipe.

Bouillon is generally a combination meat and bone stock. Adding a garnish in the form of separately cooked vegetable or products such as noodles, spaghetti, and rice produces a soup.

Broth is juice of a particular type of meat and is often served plain or with a garnish of meat similar to those in bouillon.

Consomme is a clarified bouillon or stock which is made of vegetable, ground lean beef, or chicken and clarified by the addition of white of eggs and a very small amount of edible acid.

PREPARING SOUP (CONSOMME). Mix in the pot according to recipes: lean ground meat (beef, veal, or chicken) and coarsely chopped vegetables; spice lightly; add beaten egg white, acid, and 10 per cent of stock to be used. While continually stirring, add balance of plain stock; bring to a boil; stir occasionally to prevent scorching; and simmer for 1 1/2 hours. Broth should be very rich in flavor and at the same time crystal clear.

PREPARING THICK OR CREAM SOUP. Cream soup is thickened stock that contains a roux of meat, vegetable puree, or eggs as a thickening agent. However, a cream sauce may be used as substitute for stock. A typical example of this is cream of tomato soup.

PUREE SOUPS. Puree soups are solid food items such as vegetables or legumes cooked well done and either wholly or in part pureed and strained through a sieve to produce a fine smooth texture. A small amount of roux may be cooked in the soup to prevent settling of puree.

CHOWDER AND VEGETABLE SOUP. Chowder and vegetable soup are either cooked in stock or in their own broth. All solid ingredients in these soups should be easily identified and not overcooked.

VEGETABLE SOUP

P. SOUPS No. 7

YIELD: 100 Portions (6¼ Gallons) — EACH PORTION: 1 Cup

INGREDIENTS	WEIGHTS	MEASURES		METHOD
Stock, beef		5 gal		1. Heat stock.
Carrots, fresh, diced	2 lb	1½ qt		2. Add vegetables to hot stock; simmer until vegetables are almost tender.
Onions, dry, chopped	2 lb	1½ qt		
Celery, fresh, chopped	2 lb	1½ qt		
Peppers, sweet, fresh, chopped	8 oz	1½ cups		3. Add remaining ingredients and simmer about 30 minutes. More water may be added if necessary.
Potatoes, white, fresh, chopped	3 lb	2 qt		
Cabbage, fresh, chopped	2 lb	3½ qt		
Tomatoes, canned	12 lb 12 oz	1½ gal (2-No. 10 cn)		
Salt	5 oz	½ cup		
Pepper, black		1 tbsp		

NOTE: 1. Beef Stock. See Recipe Card P-1.
2. 1 lb 4 oz Soup and Gravy base, beef, may be used in Step 1. See Recipe Card A-12. Omit salt in Step 3 and season to taste.
3. 4 oz dehydrated onions may be used in Step 1 and 1 oz dehydrated green peppers in Step 3. See Recipe Card A-11.

Figure 9.

GUMBOS. Gumbos are very similar to vegetable soup and chowders in appearance. They are often prepared with seafood, chicken, vegetable and rice. Instead of using roux as a thickener, gumbos are often thickened with dissolved cornstarch and simmered ten minutes.

Sauces and Gravies

SAUCES. The definition of sauce is liquid seasoning served with food to enhance the acceptability of the food item. Most sauces are rich in food values. Sauces are similar to soup in several respects since most sauces are composed of stock and thickened with roux.

THICKENING AGENTS FOR SAUCES

1. Roux offers the most versatile uses in sauces and soup cookery.

2. Starches such as edible corn starch, wheat starches, and potato starch are frequently used for specific foods.

3. Eggs are often used as binders or thickeners.

GRAVY. The term gravy is slang for sauce used for meat, fish, poultry, or vegetables. In the food field and in the armed forces, gravy means the juice that drips from meat. This unthickened juice is called au jus. Au jus is distinguished from other sauces in that it is clear light to dark brown in color, and not thickened with roux. See Figure 10 for a gravy recipe.

Cereals

Chief sources of cereals are wheat, rye, corn, oats, and buckwheat.

READY TO EAT CEREALS. A wide variety of ready to eat cereals are served regularly to military personnel. They are packed in individual serving and each person chooses from a variety of brands and kinds when he goes through the serving line. These cereals vary with the grain or part of the grain used and the method of processing. All ready to eat cereals are precooked and some irradiated or enriched with minerals and vitamins. Others contain such substances as sugar, syrup, honey, molasses, or flavoring such as cinnamon. They are manufactured as flakes that may or may not have bran added, as crisp cereal, or puffed cereals. Crispness of ready to eat cereals can be restored in damp weather by placing in a shallow pan and heating in a moderate oven 350° to 375° leaving the door slightly ajar.

BROWN GRAVY

YIELD: 100 Portions (2 Gallons) — EACH PORTION: 1/3 Cup

PAN SIZE: 18 by 24-inch Roasting Pan

INGREDIENTS	WEIGHTS	MEASURES		METHOD
Meat drippings and clear fat or shortening	1 lb 8 oz	3 cups		1. Sprinkle flour evenly over drippings and fat in bottom of pan.
Flour, wheat, hard	1 lb 2 oz	1 qt		2. Cook over low heat on top of range or in 375° F. oven 30 minutes or until flour is rich brown. Stir frequently to avoid over browning.
Stock or water, hot		2 gal		3. Add roux to stock, stirring constantly. Bring to a boil: reduce heat and simmer 10 minutes or until thickened, stirring constantly.
Salt	3 oz	4½ tbsp		4. Add salt and pepper.
Pepper, black		1 tbsp		

NOTE: 1. 8 oz Soup and Gravy base, beef or chicken, may be used in Step 3. See Recipe Card A-12.
2. If desired, 1 clove dry garlic, crushed, may be added in Step 3.

Figure 10.

READY TO COOK CEREAL. These items are marketed as fine granules such as farina or corn meal, flake grain such as rolled oats, flake wheat, and whole grain such as rice and hominy.

FINE GRANULAR CEREALS. Fine granular cereals such as farina should be combined with enough cold water to form a smooth paste to prevent lumping. The rest of the required liquid is brought to a boil. The paste is stirred slowly and carefully into the boiling water. This mixture is brought to a boil over direct heat, cooked for approximately two minutes and then placed in the covered top of a double boiler over boiling water to continue cooking. Covering the cereal prevents the formation of a skin on the top of the cereal. A ratio of approximately six parts of water to one part of cereal by volume is used in preparing the cereal. If the consistency of the finished product is too thin, excess moisture can be evaporated by further cooking. Cereal that is too thick can be thinned by adding a small amount of boiling water.

FLAKED GRAIN CEREAL. Flaked grain cereal such as rolled oats or flaked wheat should be sprinkled gently into boiling, salted water. Slight stirring may be required only if the water stops boiling. This cereal may be cooked at a gentle boil over direct heat for approximately two minutes and then allowed to continue cooking in a double boiler. Unnecessary stirring or excessive boiling causes loss of identity and produces a sticky, gummy mess. A ratio of two and a half to three parts of water to one part of cereal by volume is used. The amount of salt used may be based on the amount of dry cereal used, 1 teaspoon salt per cup of cereal; or it may be based on the cooking water used, 1 1/2 teaspoons or more salt per quart of water. See Figure 11 for an example of a hot breakfast cereal recipe.

Eggs

Chefs refer to eggs as "the cement that holds the castles of cookery together." Eggs are considered a complete food because of their fat, protein, mineral, and vitamin content.

STRUCTURE. An egg is composed of an outer shell made up of a porous protein material and the inner shell composed of membrane, air cell, white, and yolk.

STANDARDS. Egg standards are not established to measure food value but to emphasize other favorable characteristics. The exterior of an egg is judged by its cleanliness, shape, soundness, color, and size.

HOT BREAKFAST CEREALS
(Regular Type)

YIELD: 100 Portions — EACH PORTION: 3/4 Cup

CEREAL	WEIGHT	MEASURE	SALT	WATER	COOKING TIME
Corn meal.....	6 lb.....	1 1/8 gal.	6 tbsp...	4 1/2 gal hot. 1 gal cold	10 to 15 minutes
Hominy grits...	6 lb.....	1 gal....	6 tbsp...	6 gal.....	25 to 30 minutes
Whole wheat meal	6 lb....	1 1/8 gal	6 tbsp...	5 gal.....	15 to 20 minutes

METHOD

CORN MEAL:
1. Add salt to water. Heat to boiling.
2. When water comes to a boil, combine cereal with 1 gal of COLD WATER; add to boiling salted water. Stir constantly.
3. Cook the required length of time. Stir frequently.

HOMINY GRITS AND WHOLE WHEAT MEAL:
1. Add salt to water. Heat to boiling.
2. Add cereal gradually. Stir to prevent lumping.
3. Bring to a boil and cook the required length of time. Stir occasionally. Cover the GRITS during cooking period.

Figure 11.

The interior quality of an egg is judged (through candling) by the size of the air cell and the position and condition of the yoke.

SIZES AND GRADES. There are many sizes and grades of eggs. Eggs range from "jumbo" to "small" and grades from "AA" to "C". The Air Force normally purchases medium-sized grade "A" eggs.

AGE. The age of an egg does not necessarily indicate its quality but its condition. In fact, an egg 6 months old and kept in a regrigerator at the proper temperature (35° F) could be of better quality than one 2 weeks old that was improperly stored.

QUALITY EGGS. A fresh egg of the best grade when broken in a pan on a griddle covers only a small area. The yolk is upstanding and the

thick white is large and stands firmly around the yolk. Eggs of poor quality when placed in a pan spread over a very wide area. The yolk is very flat, breaks easily, and the white is thin and watery. Even when cooked, eggs show definite quality characteristics. Good quality eggs when hard-cooked (hard boiled) and shelled show a well centered completely yellow yolk. Inferior grade eggs when hard-cooked have a yolk that is off center with a greenish tinge to its outer surface.

COOKING PRINCIPLES. When preparing eggs or foods containing eggs, follow these principles. Use fresh, clean eggs. Break eggs into dish. Use even, moderate heat for cooking and cook just until done. When egg whites are at room temperature, they beat more readily and to a larger volume.

EGG COOKING STANDARDS. If you follow the egg-cooking recipes shown in AFM 146-12, you should produce consistently good egg products. If your cooked eggs meet the following standards, your products can be considered satisfactory. A good hard-cooked egg has a firm but tender white. The yolk is mealy, not pasty, and the flavor is fresh and pleasing. A good fried egg has a tender white without ragged edges. The yolk is rounded and slightly set with a white coating over it. The egg is crisp but not greasy around the edges. Good scrambled eggs show a complete mixture of white and yolk. They are thickened throughout but still moist, tender, and flavorsome. A good omelet has a well-browned but not overcooked surface. Edges should be folded in half or rolled over the center. See Figure 12 for an example of a fried egg recipe.

Dairy Products

Milk, butter, and cheese are the three dairy products used in Air Force dining halls.

MILK. There are five kinds of processed milk used. They are fresh, concentrated, evaporated, condensed, and powdered milk.

BUTTER AND MARGARINE. The official definition of butter (by Act of Congress) is a product made exclusively from milk or cream or both; with or without common salt; with or without additional coloring matter; and containing not less than 80% by weight of milk fat, all tolerances having been allowed. Margarine is a product composed wholly, or in part, of fat other than milk fat, together with water, skimmed milk, and salt.

CHEESE. Most cheeses are made from whole milk which makes its food value very high. For example, it takes 10 pounds of milk to make

one pound of cheddar cheese. One ounce of cheddar cheese is equal in food value to one egg, one glass of milk, or two ounces of meat.

GRIDDLE FRIED EGGS

F. CHEESE AND EGGS No. 10(2)

YIELD: 100 Portions				EACH PORTION: 2 Eggs
PAN SIZE:				TEMPERATURE: 325° F. Griddle
INGREDIENTS	WEIGHTS	MEASURES		METHOD
Eggs, whole	20 lb	200 eggs		1. Break 2 eggs in each small bowl.
Bacon fat or shortening, melted	2 lb 8 oz	1¼ qt		2. Fry eggs directly on well greased griddle 2 minutes for soft yolk; 3½ minutes for medium yolk.
Salt		to taste		3. Sprinkle with salt and pepper.
Pepper, black		to taste		4. Turn eggs and cook on other side, if desired. Serve immediately.

VARIATION

1. OVEN FRIED EGGS: Preheat oven to 350° F. Cover bottom of roasting pans (18 by 24 inches) with thin layer of hot fat. Add eggs and place pans in oven 3 minutes for soft yolk; 5 minutes for medium yolk.

Figure 12.

Beverages

When we speak of beverages we are referring to such standard drinks as tea, coffee, cocoa, and fruit juices. All have their place in the Air Force menu.

COFFEE. As an Air Force cook, you cannot control the grade or blend of coffee used; like other ration components, it is issued by the commissary. You can, however, control the method used to brew the coffee. The three

basic methods of making coffee are percolator, drip or urn, and vacuum. See Figure 13 for a coffee recipe.

TEA. This beverage, although popular in certain sections of the United States, ranks a poor second to coffee in the Air Force. The actual brewing of tea is similar to that of coffee, the difference being in the proportions of tea to water used.

COCOA. Cocoa (chocolate) may be served either hot or cold. It is considered a very popular drink especially among young airmen. Cocoa is considered a heavy drink which should not be served with a heavy meal.

FRUIT DRINKS. The types of fruit drinks used are canned, frozen, concentrated, and powdered. Follow the directions on the container when preparing these drinks.

Sandwiches

Sandwiches are often used as a main course for a light meal or snack. A good sandwich must be fresh, tasty, and interesting. A sandwich is made up of bread, butter, filling, garnish, and wrapping. The wrapping protects fresh ingredients. Precautions must be taken against spoilage when using spreads. Spreads should be made fresh and kept refrigerated until used. If a sandwich is not to be eaten immediately, pack the ingredients separately. Sandwiches that are to be carried out should be tightly wrapped in nonabsorbent paper to keep them fresh. See Figure 14 for a sandwich recipe.

Leftovers

All meals produce leftovers. Always try to work your leftovers from one meal into the following meal. You can make leftovers a very acceptable dish by changing their original appearance and flavor to a certain extent or by combining them with other foods. Never keep leftovers longer than 24 hours. Your cook's work sheet normally carries instructions from the food service supervisor on how leftovers should be used.

COFFEE—FILTER OR DRIP METHOD

C. BEVERAGES No. 3

YIELD: 100 Portions (7 Gallons)				EACH PORTION: 9 Ounces
INGREDIENTS	WEIGHTS	MEASURES		METHOD
Coffee, roasted, ground	3 lb	3¾ qt		1. Place filter paper in dry basket carefully to avoid tearing. 2. Pour coffee into basket, spreading uniformly. Place basket in urn.
Water, briskly boiling		7½ gal		3. Pour or siphon boiling water over coffee. 4. Cover; let water drip through completely. 5. Remove basket immediately. 6. Draw off approximately 2 gal of brew and pour back into urn to mix to insure a uniform brew. 7. Replace cover of urn; serve.

NOTE: 1. Hold finished coffee at 185° F. for service.
2. Replenish water in outer jacket of urn whenever gauge shows less than half full.
3. Empty coffee grounds. Wash basket and dry thoroughly for next use.

Figure 13.

SLICED CORNED BEEF SANDWICHES N. Sandwiches No. 9

YIELD: 100 Portions			EACH PORTION: 1 Sandwich
INGREDIENTS	WEIGHTS	MEASURES	METHOD
Beef, corned, cooked	16 lb....	....	1. Cut corned beef in thin slices, 19 to 25 slices per pound.
Bread.....	12 lb...	200 slices	2. Spread buttered bread with mustard. Place 3 to 4 slices of corned beef on 1 slice of bread; top with lettuce and second slice of buttered bread.
Butter or margarine, softened	2 lb....	1 qt.....	
Mustard, prepared	2 lb....	1 qt.....	
Lettuce, fresh, trimmed (optional)	4 lb....	....	

NOTE: 1. See Recipe Card N-G-3 for variations in sandwich spread.
2. 24 lb corned beef will yield about 16 lb cooked corned beef.

VARIATION

1. CORNED BEEF AND CHEESE SANDWICHES: Use 6 lb 4 oz (100 slices) sliced, processed cheddar or Swiss cheese. In Step 2, place 1 slice cheese on top of sliced corned beef in each sandwich.

Figure 14.

QUESTIONS

1. Soups are classified into what two main groups? _____

_____

2. What is the definition of sauce? _____

_____

3. What are the chief sources of cereals? _____

_____

4. Cooked cereals that are too thick can be thinned by adding what?

_____

5. Why are eggs considered a complete food? _____

_____

6. The Air Force normally purchases what size and grade of eggs?

_____

7. What are the three dairy products used in the Air Force dining halls? _____

8. What are the three basic methods of making coffee? _____

_____

9. A good sandwich must be _____

_____

10. What should be changed on leftovers to make them a more acceptable dish? _____

_____

_____

CARVING OF MEATS AND POULTRY

Carving Meat

Pot roast and oven roast are carved about the same. It is very important in carving the roast to make even slices of uniform thickness. Knowing the direction in which the muscles run is essential because in making a slice the carver should cut across the grain wherever possible. This shortens the fibers and makes a more desirable serving. The shorter the fibers, the easier it is to chew the meat. In carving most cuts of roasts, carving across the grain can be done by making the slices parallel to the cut surface because the meat cutter cuts across the grain in preparing the meat at the plant. The carver should learn to carve neatly without scattering bits of meat and its juices over the serving area. Care should be taken to divide the meat so that each person is served equally well. If there is not enough of the choice portions for everyone without using the less desirable part, the carver should serve some of each to everyone. If the carving is neatly done, the portion of the roast which has not been cut will be attractive. The meat that remains uncarved should not be jagged and rough but inviting enough to tempt diners to a second helping. The remains of a neatly carved roast will be in a more usable condition for serving at another meal than the uncut remains of a poorly carved roast. The steps in carving a pot roast, pork roast, or canned ham are to:

1. Gather all equipment necessary to carve. This includes a carving knife, carving fork, butcher steel, sheet pan, and cutting board.

2. Place roast on cutting board, fat side of the meat up.

3. Stick carving fork 3 to 4 inches from edge to be cut. Be sure to hold roast firmly so that it will not slide.

4. Hold the carving knife firmly in your hand, start at the heel of the blade on the opposite side of the roast making long strokes the entire length of the blade toward you. Make sure you always carve across the grain. Slices should be 3/8 to 5/8 inches thick.

5. After each slice is carved, it is lifted on the blade of the knife, steadied with the fork, and placed on the plate or tray of the consumer.

Carving Poultry

Good poultry carving is accomplished with long practice and a sharp knife. The bird should be cooled slightly before carving to prevent loss

of juice and excessive crumbling. The following steps should be carried out in carving turkey. The bird is placed on its back with the legs to the right of the carver. The drumstick is held firmly with thumb and forefinger and skin is clearly cut between the leg and body. With a twist on the end of the drumstick the leg may be separated from the body. The leg will separate easily if the bird has been properly cooked. The leg and thigh are then separated and the meat is sliced. The wing is removed from the bird in the same way as the leg is removed. When slicing the breast, the carver steadies the turkey by holding it with a carving fork straddling the ridge of the breast, then holding the knife parallel to the breast bone, he begins slicing just above the place where the wing was removed. Each time he carves higher until the crest of the bone is reached. A cut above the wing point across the body to the front causes the slices to fall free when the knife reaches the incision. After the bird has been carved on one side, it is turned over and the carving process is repeated on the other side. Another method of slicing the breast is to remove it in one piece and slice it on a slicing machine.

QUESTIONS

1. Why should a roast be carved across the grain? _____

_____

_____

2. Carved roast should be sliced at what thickness? _____

3. In what position is a turkey placed for carving? _____

_____

4. When slicing the breast of a turkey, the knife is held in what position?

_____

Garnishing of Prepared Foods

Garnish is a decoration added to food to improve its appearance and in most cases to add to the value.

DO'S AND DON'TS OF EFFECTIVE FOOD GARNISHING. Do use restraint, vary food garnish, plan simple garnishes, and take advantage of contrast in natural colors of food. Don't get carried away trying to add a garnish to every item or let garnishes become monotonous. Don't leave it up to inexperienced personnel to decide how to place food items on trays or rely too frequently on food coloring to supply color contrast.

FOOD COMBINATIONS USED FOR GARNISH. Raw vegetables - carrots, cucumbers, and green peppers. Fresh fruits - apples, avocadoes, grapefruit, bananas, and oranges.

PREPARING GARNISHES. Most any colorful fruit or vegetable can be made into a decorative garnish if you use the proper designing procedure. Some of the garnishes and methods of preparing them are as follows:

Radish rosebud	Use a whole radish. Cut lengthwise and then cut each half in the shape of a rosebud by cutting a triangle-shaped wedge from each half. Next, place ripe olive wedges in the center of the radish wedge cutouts to form stamen of rose.
Stuffed tomato	Cut a small tomato in half. Scoop out the center and half fill the bottom with the appropriate filling. Cover the top half of tomato. Top with boiled egg white cutouts.
Decorative leaves	Make from stems of green onions, celery leaves, etc. Top with a center of red pimento.
Celery decorations	Cut celery stalks 3 to 4 inches long, slice stalks in half and trim to appropriate design. Stuff with any appropriate garnish. Top with assorted radish or olive slices.

QUESTIONS

1. What are the two purposes of garnishing food?_____

_____

2. Name five fresh fruits used for garnishing. _____

_____

_____

Problem 1

Listed below are six meat items used in Air Force dining halls. Identify the method of cookery used in the preparation of these items and place the answer in the space provided.

1. Oven Roast _____
2. Pot Roast _____
3. Swiss Steaks _____
4. Beef Stew _____
5. Fried Chicken _____
6. Grilled Steaks _____

Problem 2

Cooking is performed by two basic methods: dry heat and moist heat. Listed below are ten variations of these methods. Determine what method of cookery is used in these variations and place the answer in the space provided.

1. Roasting _____
2. Simmering _____
3. Broiling _____
4. Pan or griddle broiling _____
5. Braising _____
6. Boiling _____
7. Pan frying _____
8. Steaming _____
9. Deep fat frying _____
10. Pressure cooking _____

Problem 3

Listed below are the four catagories of vegetables. Match each vegetable with the proper preparation and cooking procedure.

1. _____ Fresh

2. _____ Canned

3. _____ Frozen

4. _____ Dehydrated

A. Season to taste with butter, bacon drippings, or margarine. Heat to serving temperature.

B. Handle carefully. Some require no cooking. Start in cold water and bring to boil. Reduce heat and simmer until tender.

C. Wash in drinkable water. One or more of the following operations may be performed: cleaning, paring, crisping, slicing, dicing, scraping, or shredding.

D. Cooking time begins when water reaches the second boil. Cook at gentle boil until tender. When cooked, vegetables are drained, seasoned, and served.

Problem 4

There are two techniques used in the preparation of quick breads (dough and batter). Listed below are seven quick breads. Match each with the technique used in its preparation.

1. _____Cornbread
2. _____Muffins
3. _____Biscuits
4. _____Waffles
5. _____Hushpuppies
6. _____Pancakes
7. _____Cakes

A. Dough

B. Batter

Cook Course
Lowry AFB, CO

SW 3ABR62230-II-5
April 1975

PROGRESSIVE COOKERY AND WASTE PREVENTION

OBJECTIVES

a. Describe the procedure used in progressive cookery.

b. Identify the major causes of food waste.

INTRODUCTION

In this SW we will be discussing two important areas of food service. The first will be progressive cookery, and the second is the importance of waste prevention. You will also learn the other important waste prevention measures such as portion control and the proper use of left-overs.

INFORMATION

PROGRESSIVE COOKERY

Progressive cookery is not something new in the food business. It has been employed for years in large restaurants and institutional feeding establishments. In progressive cookery, you cook small portions of the total food requirement to coincide with serving intervals. This provides freshly cooked foods to the consumer by avoiding long holding periods and the resulting loss of flavor, color, texture, and nutritive value. Progressive cookery will also insure that diners coming in at the end of the meal have the same choice of food items as were on the serving line at the beginning of the meal period. Cooked food scores its highest appeal when it arrives at the table piping hot, naturally flavorsome, bright colored, and of the proper texture. This desirable condition is due to the results of proper planning and progressive cookery.

In determining the amount to prepare at one time and the time to prepare each portion, you must consider the number of personnel to be served, the speed of your serving line, and the acceptability of the food item. Schedule your method of

progressive cookery so that a fresh product is ready for the serving line just as one is deleted. For example, you are assigned to prepare and cook nine roasts for the noon meal. You are instructed that three of the roast are to be served well done, three medium rare, and three rare. The dining hall opens for lunch at 1100 hours and serves until 1230 hours. In this period of time the dining hall will feed 300 men at intervals of 100 airmen every 30 minutes. The following examples show the cooking sequence that may be followed using progressive cooking techniques.

Approximate cooking times------Well done oven roast---4 hrs
Medium rare oven roast--3 hrs
Rare oven roast---------2 hrs

	Begin Cooking Cycle	Complete Cooking Cycle
1st well done roast to be served	0640 hrs	1040 hrs
1st medium rare roast to be served	0740 hrs	1040 hrs
1st rare roast to be served	0840 hrs	1040 hrs
2nd well done roast to be served	0710 hrs	1110 hrs
2nd medium rare roast to be served	0810 hrs	1110 hrs
2nd rare roast to be served	0910 hrs	1110 hrs
3rd well done roast to be served	0740 hrs	1140 hrs
3rd medium rare roast to be served	0840 hrs	1140 hrs
3rd rare roast to be served	0940 hrs	1140 hrs

NOTE: All roasts require 20 minutes standing time before carving.

MAJOR CAUSES OF FOOD WASTE

It is the responsibility of everyone who eats, handles, or prepares food to see that it is wisely used and not wasted. Basic food conservation originates with the persons responsible for receiving, handling, and preparing food for consumption. When rations are received at the dining hall they should

be examined. All items should be in good condition. If any items are in particularly bad condition the good portion may be salvaged and used. Vegetables and fruits must be trimmed and culled prior to storage. A careful check should be made of weights and the number of items received to insure that the dining hall is receiving all the food to which it is entitled. Food should be stored properly to insure that it will remain in good condition.

Causes of Waste

There are many causes of food waste in the dining hall. Listed below are some of the major causes:

a.	Pilferage	The unauthorized removal of subsistence from the dining hall (usually for individual gain).
b.	Spoilage	Food deteriorating to the point that it is no longer fit for human consumption (usually caused by improper storage).
c.	Loss of freshness	Food becomes stale and unappetizing (usually caused by holding food items for too long a period of time).
d.	Poor preparation	Food prepared in such a manner that it is unappetizing and in some cases inedible (usually caused by failure to comply with standardized recipes).
e.	Overpreparation	More food is prepared than is consumed by the dining hall patrons (usually caused by failure to comply with AF 679, Cook's Worksheet, or to use progressive cooking techniques).

Procedure for Waste Prevention

Excess stock in storage and high food waste are directly related. Usually, this will bring about pilferage, spoilage, and loss of freshness. Excess stock will also induce scarcity and/or strain on the supply system. Under current methods of issue there is no valid reason why subsistence in excess of current requirements should be on hand.

Portion control is the serving of a standardized amount of food to each patron. The size of each portion is specified in column H of AF Form 679, Cook's Worksheet, as well as the upper right-hand corner of the appropriate recipe card. For example, 4 1/2 ozs of roast beef, 3/4 cup of mashed potatoes, 2 tablespoons of natural gravy, and 1/2 cup of harvard beets. Without the use of standard portions it would be very difficult to plan the proper amount of food to prepare.

Psychological factors have an influence on most eating habits. When food is served in an unattractive fashion, less food is eaten and more is discarded. Food should be cut, portioned, and served neatly and promptly at the appointed hour. Sufficient servers should be assigned to facilitate quick, efficient service. Food service attendants must be emaculately clean and neat in appearance. Foods to be served should be garnished, placed on the serving dish neatly, and presented to the consumer with pride.

The major cause of poor preparation falls directly upon those responsible for food preparation. Primary causes are inattention by the cooks to available recipes and AF Form 679, Cook's Worksheet, which specifies the correct quantity to prepare, use of proper times for preparation and cooking, cooking temperatures, and proper seasonings. Maintaining foods at proper temperature is also essential. Hot foods should be served hot and cold foods served cold. Using the methods of progressive cookery discussed earlier in this chapter is very helpful in the prevention of overpreparation.

All meals produce leftovers, and you should know how to use them to avoid waste. Always try to work your leftovers from one meal to the next. Change their original appearance and flavor to a certain extent or combine them with other food. Leftover chicken may be used as chicken ala king by stripping the meat from the bone and dicing. By the use of good planning and imagination, you can turn leftovers into very acceptable dishes and use food that would have otherwise been discarded. However, do not keep leftovers for more than 24 hours. There is too much danger of food poisoning developing.

During the past 3 weeks, you have learned many facets of food service. Some of the areas that we have discussed are sanitation, nutrition, meat identification, and principles of food preparation. The person responsible for preparing menus for the meals served in the dining hall must keep in mind nutritional adequacy, practibility, and acceptance when preparing the menu.

QUESTIONS

1. What is meant by the term progressive cooking?

_____

_____

2. What is meant by portion control? _____

_____

3. What can be done with leftovers to make them more acceptable? _____

_____

_____

4. What is the maximum period of time leftovers can be held? _____

PROBLEM 1

Listed below are ten causes of waste in a food service facility. Of these, list the five major causes of waste.

1. pilferage
2. slow transportation
3. spoilage
4. refrigerator defrosted
5. loss of freshness
6. improper storage
7. overpreparation
8. dining hall overcrowded
9. poor preparation
10. serving line temperatures

1. _____
2. _____
3. _____
4. _____
5. _____

PROBLEM 2

Given the following information, explain the procedures for cooking by the progressive cookery method.

a. 100 lbs of hamburger patties.

b. Feeding a total of 300 patrons.

c. Dining hall opens at 11:00 hrs and closes at 12:30 hrs.

d. 100 patrons every 30 minutes.

_____

_____

_____

_____

_____

Cook Course
Lowry Air Force Base, Colorado

SG 3ABR62230-III-1
April 1975

DINNER PREPARATION AND SERVICE

OBJECTIVES

a. Using the completed cook's worksheet, applicable recipes, designated food items, and required equipment to prepare, cook, and serve the dinner meal to meet Air Force standards.

b. Given selected cleaning materials, clean equipment and facilities used in the preparation of the dinner meal.

INTRODUCTION

You have learned in previous lessons and through practical experience the necessity and use of portion control; cook's worksheet and recipes; methods of preparing and cooking foods; and the identification of meats, seafoods, and poultry.

Now you will use this acquired knowledge and practical experience in preparing, cooking, and serving the dinner meal. Having this knowledge and practical experience background, you will now select the food in accordance with the menu. You will identify meats, seafoods, poultry, fruits, and vegetables for preparation and cooking.

Using the appropriate condiments, recipes, cook's worksheet, and dry and moist heat methods, you will prepare and cook the dinner meal. Remember, the dry heat method is used for roasting, broiling, and frying; and the moist heat method is used for simmering, braising, boiling, steaming, and pressure cooking. You will also prepare quick breads, salad dressings, dairy products, and beverages as directed by the cook's worksheet.

You will garnish the food items, place the food items on the serving line, and serve the proper portion of food to meet predetermined standards established by the dining hall supervisor.

Remember to exercise safety precautions at all times while preparing, cooking, and serving the meals.

DESIGNED FOR ATC COURSE USE

DO NOT USE ON THE JOB

You will also be given materials to clean equipment and facilities used in the preparation of the dinner meal. During the process of cleaning equipment and facilities, exercise safety precautions.

To refresh your memory, reread the following SWs:

3ABR62230-I-4, Sanitation
3ABR62230-I-5, Obtaining and Accounting for Meals Served
3ABR62230-I-7, Nutrition
3ABR62230-I-9, Meat Identification

3ABR62230-II-1, Use of Civilians in the Dining Halls and Customer Relations
3ABR62230-II-2, Equipment
3ABR62230-II-3, Cooking Terms, Seasoning Agents, and Weights and Measures
3ABR62230-II-4, Principles of Food Preparation
3ABR62230-II-5, Progressive Cookery and Waste Prevention

Cook Course
Lowry Air Force Base, Colorado

SG 3ABR62230-III-2
April 1975

LUNCH PREPARATION AND SERVICE

OBJECTIVES

a. Using the completed cook's worksheet, applicable recipes, designated food items, and required equipment to prepare, cook, and serve the lunch meal to meet Air Force standards.

b. Given selected cleaning materials, clean equipment and facilities used in the preparation of the lunch meal.

INTRODUCTION

You have learned in previous lessons and through practical experience the necessity and use of portion control, cook's worksheet and recipes, methods of preparing and cooking foods; and the identification of meats, seafoods, and poultry.

Now you will use this acquired knowledge and practical experience in preparing, cooking, and serving the lunch meal. Having this knowledge and practical experience background, you will now select the food in accordance with the menu. You will identify meats, seafoods, poultry, fruits, and vegetables for preparation and cooking.

Using the appropriate condiments, recipes, cook's worksheet and dry and moist heat methods, you will prepare and cook the lunch meal. Remember, the dry heat method is used for roasting, broiling, and frying; and the moist heat method is used for simmering, braising, boiling, steaming, and pressure cooking. You will also prepare quick breads, salad dressings. dairy products, and beverages as directed by the cook's worksheet.

You will garnish the food items, place the food items on the serving line, and serve the proper portion of food to meet predetermined standards established by the dining hall supervisor.

Remember to exercise safety precautions at all times while preparing, cooking, and serving the meals.

DESIGNED FOR ATC COURSE USE

DO NOT USE ON THE JOB

You will also be given materials to clean equipment and facilities used in the preparation of the lunch meal. During the process of cleaning equipment and facilities, exercise safety precautions.

To refresh your memory, reread the following SWs:

3ABR62230-I-4, Sanitation
3ABR62230-I-5, Obtaining and Accounting for Meals Served
3ABR62230-I-7, Nutrition
3ABR62230-I-9, Meat Identification

3ABR62230-II-1, Use of Civilians in the Dining Halls and Customer Relations
3ABR62230-II-2, Equipment
3ABR62230-II-3, Cooking Terms, Seasoning Agents, and Weights and Measures
3ABR62230-II-4, Principles of Food Preparation
3ABR62230-II-5, Progressive Cookery and Waste Prevention

Cook Course
Lowry Air Force Base, Colorado

SG 3ABR62230-IV-1
April 1975

SHORT ORDER PREPARATION AND SERVICE

OBJECTIVES

a. Using the completed cook's worksheet, applicable recipes, designated food items, and required equipment to prepare, cook, and serve the short order meal to meet Air Force standards.

b. Given selected cleaning materials, clean equipment and facilities used in the preparation of the short order meal.

INTRODUCTION

You have learned in previous lessons and through practical experience the necessity and use of portion control; cook's worksheet and recipes; methods of preparing and cooking foods; and the identification of meats, seafoods, and poultry.

Now you will use this acquired knowledge and practical experience in preparing, cooking, and serving the short order meal. Having this knowledge and practical experience background, you will now select the food in accordance with the menu. You will identify meats, seafoods, poultry, fruits, and vegetables for preparation and cooking.

Using the appropriate condiments, recipes, cook's worksheet, and dry and moist heat methods, you will prepare and cook the short order meal. Remember, the dry heat method is used for roasting, broiling, and frying; and the moist heat method is used for simmering, braising, boiling, steaming, and pressure cooking. You will also prepare quick breads, salad dressings, dairy products, and beverages as directed by the cook's worksheet.

You will garnish the food items, place the food items on the serving line, and serve the proper portion of food to meet predetermined standards established by the dining hall supervisor.

Remember to exercise safety precautions at all times while preparing, cooking, and serving the meals.

You will also be given materials to clean equipment and facilities used in the preparation of the short order meal. During the process of cleaning equipment and facilities, exercise safety precautions.

To refresh your memory, reread the following SWs:

3ABR62230-I-4, Sanitation
3ABR62230-I-5, Obtaining and Accounting for Meals Served
3ABR62230-I-7, Nutrition
3ABR62230-I-9, Meat Identification

3ABR62230-II-1, Use of Civilians in the Dining Halls and Customer Relations
3ABR62230-II-2, Equipment
3ABR62230-II-3, Cooking Terms, Seasoning Agents, and Weights and Measures
3ABR62230-II-4, Principles of Food Preparation
3ABR62230-II-5, Progressive Cookery and Waste Prevention

Cook Course
Lowry Air Force Base, Colorado

SG 3ABR62230-IV-2
April 1975

BREAKFAST PREPARATION AND SERVICE

OBJECTIVES

a. Using the completed cook's worksheet, applicable recipes, designated food items, and required equipment to prepare, cook, and serve the breakfast meal to meet Air Force standards.

b. Given selected cleaning materials, clean equipment and facilities used in the preparation of the breakfast meal.

INTRODUCTION

You have learned in previous lessons and through practical experience the necessity and use of portion control, cook's worksheet and recipes, methods of preparing and cooking foods; and the identification of meats.

Now you will use this acquired knowledge and practical experience in preparing, cooking, and serving the breakfast meal. Having this knowledge and practical experience background, you will now select the food in accordance with the menu. You will identify meats and fruits for preparation.

Using the appropriate condiments, recipes, cook's worksheet, and dry and moist heat methods, you will prepare and cook the breakfast meal. Remember, the dry heat method is used for roasting, broiling, and frying; and the moist heat method is used for simmering, braising, boiling, steaming, and pressure cooking. You will also prepare quick breads, salad dressings, dairy products, and beverages as directed by the cook's worksheet.

You will garnish the food items, place the food items on the line, and serve the proper portion of food to meet predetermined standards established by the dining hall supervisor.

Remember to exercise safety precautions at all times while preparing, cooking, and serving the meals.

DESIGNED FOR ATC COURSE USE

DO NOT USE ON THE JOB

You will also be given materials to clean equipment and facilities used in the preparation of the breakfast meal. During the process of cleaning equipment and facilities, exercise safety precautions.

To refresh your memory, reread the following SWs:

3ABR62230-I-4, Sanitation
3ABR62230-I-5, Obtaining and Accounting for Meals Served
3ABR62230-I-7, Nutrition
3ABR62230-I-9, Meat Identification

3ABR62230-II-1, Use of Civilians in the Dining Halls and Customer Relations
3ABR62230-II-2, Equipment
3ABR62230-II-3, Cooking Terms, Seasoning Agents, and Weights and Measures
3ABR62230-II-4, Principles of Food Preparation
3ABR62230-II-5, Progressive Cookery and Waste Prevention