SCHOOL CODE
101

SUBCOURSE
QM 6322

EDITION A

NUTRITIONAL FOOD PREPERATION
NUTRITIONAL/SKILLS DEVELOPMENT WORKSHOP
PROBLEMS OF CONSOLIDATED DINING FACILITIES AND FIELD OPERATIONS
SUPERVISING GARRISON AND FIELD OPERATIONS
RESPONSIBILITIES OF THE SENIOR FIRST COOK/OPERATIONS SERGEANT
FOOD SERVICE DATA FEEDBACK
QUALITY ASSURANCE
NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) OPERATIONS FOR THE SENIOR FIRST COOK

101-524-2162, 101-524-3105, 101-524-3106, 101-524-3107, 101-524-3159, 101-524-3160, 101-524-3161, 101-524-3254, 101-524-3256, 101-524-3257, 101-524-3258, 101-524-3259, 101-524-3266, 101-524-3267, 101-524-3268, 101-524-3275, 101-524-3278, 101-524-3280, 101-524-3282, 101-524-3283

TECHNICAL TRAINING
92G30

Subcourse Number QM 6322

Quartermaster
Total Army Training System Courseware (TATSC)
Basic Noncommissioned Officer Course (BNCOC)
92G30

EDITION A

United States Army Combined Arms Support Command
Fort Lee, Virginia 23801-1809

22 Credit Hours

Edition Date: 1 October 2001

SUBCOURSE OVERVIEW

This subcourse is designed to provide broad-based information for developing the Food Service Specialist Basic Noncommissioned Officer (BNCO). The BNCO will be able to employ the skills learned in this subcourse at any level of support operations.

There are no prerequisites for this course.

This subject reflects current doctrine; always refer to the latest official publications in your own work situation.

Unless otherwise stated, the masculine gender of singular pronouns is used to refer to both men and women.

TERMINAL LEARNING OBJECTIVE

ACTION: You will learn information used by Food Service Specialist Noncommissioned Officers (NCOs) as part of there routine duties. Tasks learned will enable you to better support your soldiers and leaders

CONDITION: In a self-study environment.

STANDARD: To demonstrate competency of these tasks you must achieve a minimum of 70 percent accuracy on the subcourse examination.

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ADMINISTRATIVE INSTRUCTIONS

1. Number of lessons in this subcourse: 8.

2. Materials you need in addition to this booklet are a number 2 lead pencil, the ACCP examination response sheet, and the preaddressed envelope you received with this subcourse.

3. Supervisory requirements: None

GRADING AND CERTIFICATION INSTRUCTION

Examination: This subcourse contains a multiple-choice examination covering the material in the 8 lessons. After studying the lessons and working through the practice exercises, complete the examination. Mark your answers in the subcourse booklet, and then transfer them to the ACCP examination response sheet. Completely black out the lettered oval that corresponds to your selection (A, B, C, or D). Use a number2 lead pencil to mark you responses. When you complete the ACCP examination response sheet, mail it in the preaddressed envelop you received with this subcourse. You will receive an examination score in the mail. You will receive 12 credit hours for successful completion of this examination.

LESSON 1

NUTRITIONAL FOOD PREPARATION

Critical Tasks: 101-524-3107; and 101-524-3282

OVERVIEW

LESSON DESCRIPTION:

This lesson was designed to provide soldiers in the Food Service Basic Noncommissioned Officers Course (BNCOC) with information on how to store, prepare, and serve food products to maintain optimal nutritional value.

TERMINAL LEARNING OBJECTIVE:

ACTION: Students will identify the specific skills necessary to ensure high quality and nutritionally adequate food preparation and demonstrate proper techniques for instructing and supervising.

CONDITION: In a self-study environment.

STANDARD: To demonstrate competency of this task, you must achieve a minimum score of 70 percent on the subcourse examination.

REFERENCES The material contained in this lesson was derived from the following publications: AR 30-1 (The Army Food Service Program), and FM 10-23-2

INTRODUCTION

This lesson addresses food storage, preparation, and serving practices that lend themselves to ensuring optimal nutritional value in a final food product. Included are such topics as food inspections, how to choose the proper knife, and how to correctly reconstitute various foods. As you read the information contained here, consider how it relates to your role as a supervisor. You must not only know the right techniques for producing high-quality, nutritious meals, but you must also be able to effectively oversee those who are doing it.

1. Food Inspections

Part of ensuring optimal nutritional value in foods that are being served is the process of inspecting them before they are prepared. High quality meals can only be prepared from high quality products, so it is imperative that damage, infestation, spoilage, etc., be found before bad ingredients can be used in the preparation of foods.
The types of inspections are visual, sampling, and full. They are described in what follows.

a. Visual Inspections. In visual inspection, the inspector looks at the outside of the supplies or their containers to see if there is damage or deterioration. Damaged containers (dented cans, broken boxes) are a sign of mishandling. Check bags and boxes of material that could be infested for insects along seams and under flaps. Finding damaged or infested containers is a good reason to request a veterinary inspection. Unusual smells may also be a sign of spoilage. The visual inspection is the type usually performed by food service and supply people.

b. Sampling Inspections. Veterinary service personnel (VSP) usually perform sampling inspections. The inspector chooses a number of units at random and inspects them thoroughly. If many of the samples are damaged or deteriorated, VSP will perform a full inspection. The (troop issue subsistence officer (TISO) issues items for veterinary sampling on DA Form 3161(Request for Issue or Turn-in) and posts them to the voucher register and general control (VRGC) as an identifiable loss (See AR 30-18).

c. Full Inspections. In a full inspection, VSP thoroughly examine all units of a particular item or shipment. Those which are damaged or deteriorated are set apart and the TISO is advised on the recommended disposition. Full inspections should not be conducted unless they are absolutely necessary.

2. Inspection for Deterioration or Damage

Inspections for deterioration or damage must be conducted for Troop Issue Subsistence Activity (TISA) and dining facility subsistence. These inspections are discussed in this paragraph.

a. Troop Issue Subsistence Activity Inspection

(1) Inspecting Canned Goods. Individual cans should be inspected whenever there is a reason to think they may be damaged. If boxes are broken or bent, they should be opened, and each can should be inspected. Cans that have been stored for long periods of time or exposed to extreme temperatures should be looked at too. Cans that are leaking or dented should be inspected by the veterinarian.

(2) Inspecting Semiperishables. Semiperishable subsistence will spoil if mishandled, improperly stored, or stored for long periods. Boxes, sacks, bags, and other containers should be looked at closely. The inspector should look for signs of insects or rodents, color changes in contents of jars or clear bags, moisture damage on boxes or bags, and damaged containers. IF any of these signs are present, call VSP.

(3) Inspecting Fresh Fruits and Vegetables. Fresh fruits and vegetables should be inspected when they are received and every day while they are in storage. The inspector should keep these points in mind:

(a) Size is not a good indicator of quality. Many vegetables become woody or hollow as they age. Appearances may be deceiving. Fruits and vegetables that have a pretty surface may be rotten inside. The best way to determine their quality is to taste them. Slightly damaged fruits or vegetables should be issued right away if they are going to be used at all. Once deterioration begins they will deteriorate quickly. Before you store fresh fruits and vegetables, remove those that are spoiled or damaged. Store those that require refrigeration, leaving room for air to circulate. Refer to DOD 4145-19-R-1 for recommended storage temperature and handling.

(b) Direct storage of foods on refrigerator shelves is prohibited. Use original containers or place items in a suitable storage container. Only unpeeled, hard-skinned fruits and vegetables may be stored uncovered.

(4) Inspecting Frozen Subsistence. Frozen items should be frozen solid when they are received. The packages should be checked for ice on the sides, top, and bottom. Ice on packages means the subsistence has thawed and been refrozen. It should be checked by the veterinarian.

b. Dining Facility Subsistence Inspection. When picking up rations at the supply activity, personnel should check all items for signs of possible contamination. If rations are delivered to the dining facility, check them immediately upon receipt. Make sure that there is enough refrigeration, freezer, or dry-storage space available for foods received. Food service personnel must follow proper food inspection procedures. They should know how to check food quality, check for proper temperatures, and detect potentially damaged goods. Food service personnel must ensure that they inspect the following items as described below.

(1) Meat and Poultry. Check meat and poultry items to see if they are the same as those listed on the issue slip. Inspect meat and poultry for odor, color, damage, and slime. The odor should be mild, the color normal. There should be no damage or slime.

(2) Milk or Milk Products. All products should be checked for proper temperature and condition. The temperature of the milk and milk products brought to your dining facility should not be above 45 degrees Fahrenheit. Reject broken or leaky containers. Butter should have a uniform color and firm texture and should be free of mold or specks. Cheeses should be checked for uniform color and unbroken packaging. Bottles and cartons should be free of grease or dirt. Bulk milk containers must be delivered with both seals in place and with all rubber or synthetic parts protected from contamination. Check the expiration date stamped on the package.

(3) Bread and Baked Products. Check the date code on baked items before accepting them. Your food adviser (FA) will provide you with the code used by the vendor. Post it where that the person who is checking can refer to it easily.

(4) Dry Stores. Check dry stores, such as cereals, flour, and sugar for signs of exposure to grease or moisture or contamination from insects, rats, or mice. Return open containers to the source of supply unless it is clear they were opened during ration breakdown. If a container is discolored, open it and make sure the food is not damaged or spoiled. If the outside of the container is damp or moldy, the inside contents may also be moldy.

(5) Canned Goods. Check the condition of the container in which the cans are packed. If the container is crushed or torn, open it and check the cans for holes and rust. Do not accept damaged cans. Return them to the source of supply and ask for replacements. Check for swollen tops or bottoms, leaks, flawed seals, dents, or rust. (Caution: A can that seems undamaged on the outside may still be contaminated. If, when the can is opened, the contents appear abnormal in color, odor, or texture; are foamy or have a milky-colored liquid, DO NOT USE THEM! DO NOT EVEN TASTE THEM!)

(6) Fresh Fruits and Vegetables. Check fresh fruits and vegetables for mold, wilt, rot and other defects. Remove the bad items and store the rest. Fresh fruits and vegetables should also be checked for signs of insect infestation. DO NOT remove them from the shipping container unless they are needed within 24 hours. When vegetables (except onions) are removed from the shipping container, they should be trimmed, washed and drained and placed in a covered container and refrigerated as quickly as possible. Never allow vegetables, except potatoes, onions, and garlic, to stand at room temperature for any length of time.

(7) Frozen Subsistence. Frozen items should be frozen solid when they are received. The packages should be checked for ice on the sides, top, and bottom. Ice on packages may indicate that the subsistence has thawed and been refrozen. It should be checked by VSP. When they have defrosted, they must be used right away. They should never be refrozen. Freezer temperatures should be checked at least once a day.

(8) Unsatisfactory Subsistence Items. If subsistence does not meet the terms of its purchase contract, if it has been badly packaged, or if it has been improperly stored or mishandled, it should be reported according to the procedures in AR 30-16. Report shipment-related damage as described in AR 30-18, Table 7-2.

3. TISA Storage.

a. The main cause of waste in storing food is poor management. Subsistence supplies should be stored so they are accessible and secure. The warehouse manager of the TISA should maintain a stock locator system and plan for use of space. He will be responsible for the security of stocks from theft and damage.

b. The TISO should have a planograph for each floor of every warehouse. Each floor will have short rows and long rows. Each short row meets each long row at a single grid square. Due to safety and sanitation requirements, the Directorate of Engineering and Housing (DEH) must approve the plan.

c. Each single grid square represents storage space for one 40- by 48-inch pallet with 6 inches on each side for overhang. If pallet racks are used, pallets may be stacked to a number of levels. The TISA should receive an advance copy of the shipping document before each shipment arrives. This copy is used to plan where each item on the shipment should be stored. Check the stock locator file, and mark the planned location on the shipping document. If the shipment is a large one, physically check the planned location to ensure that enough space is available.

4. Knives and Knife Handling

a. A knife is probably in the hand of a cook over 70 percent of the food preparation process, and knife handling is probably the most neglected skill. You may have noticed from time to time a cook using a boning knife on a cucumber. When did they start growing cucumbers with bones? Each knife is designed for a certain job and should be used for that job only.

(1) The boning knife is used to cut through joints and cut close around bones to separate the bones from the meat.

(2) The steak knife is used for cutting steaks and roasts. Its design even facilitates slicing large, boneless cuts of meat.

(3) The paring knife is used for peeling fruits and vegetables. Because this knife is small and easy to handle, many cooks have become very skilled at using it for garnishing and vegetable carving.

(4) The cook's knife is used for cutting, slicing, or chopping. This is the knife that you will probably use the most because it is versatile.

b. Sharpening knives is a skill in itself. You do not need to be "flashy" to have a properly sharpened knife. A slow, even pressure using a medium-fine grade Carborundum oil stone will give you the best results. Never grind a knife on a power- or hand-driven stone because this will remove the temper from the knife. Use the following method to correctly sharpen a knife:

(1) Using the entire stone, first place the heel of the knife at the upper end of the stone. Next, slowly drag the full blade (heel to tip) across the full length of the stone, keeping the knife at about a 40 to 45 degree angle depending on the bevel of the knife. Finally, turn the knife over and repeat the process, starting with the heel at the opposite end of the stone. Remember to thoroughly clean your knife before using it.

(2) After sharpening your knife, you must true the blade with a butcher's steel. This will remove any burrs from the blade. Again, you do not need to be "flashy."

(3) To steel a knife, hold the steel firmly in your hand with the point upward and slightly away from your body. (Be sure your thumb is behind the guard on the steel). Next, with a smooth, steady, swinging motion of your wrist and forearm, bring the full length of the blade

down across the steel toward your hand. Finally, repeat this procedure with the other edge of the blade against the far side of the steel. Alternate from side to side about six strokes on each side. Clean your knife after truing it.

c. Many recipes have ingredients that have to be cut a certain way. If ingredients are not cut properly, the effect may be so great that the end product cannot be served. This results in valuable food and time wasted. You must be able to correctly prepare different ingredients using the various cutting methods.

d. The "claw" method of holding the item being cut is the safest way to cut a food item. The item is held with the fingertips curved in towards the palm and the thumb supporting the item. The blade of the knife is guided against the knuckles.

e. The following list contains the various cutting methods used in many recipes. It also lists the items you will use, the size, and the tolerance within which you must stay to have an acceptable product. You will be evaluated and graded on your ability to produce these cuts on your final examination.

(1) Trim. You will use lettuce, cabbage, or onion and all wilted and nonedible portions must be cut or torn off.

(2) Cube. You will use beef or potatoes cut into 1/2-inch squares. Your cuts can be 3/8-to 5/8-inch square as long as your cuts are uniform in size.

(3) Dice. You will use potatoes cut into 1/4-inch squares. Your cuts can be 3/16-to 5/16-inch square, again, as long as they are uniform in size.

(4) Chop. You will use celery cut into 1/4-inch squares with a tolerance of 3/16-to 5/16-inch tolerance. Uniformity should be close, but it is not as important as diced or cubed items.

(5) Mince. You will use onions cut into 1/8-inch squares with a tolerance of 1/16- to 3/16-inch. Again, uniformity should be close.

(6) Slice. You will use cucumber, zucchini, potatoes, or tomatoes sliced into 1/8-inch thick slices. Your slices will be allowed a 1/16- to 3/16-inch tolerance, but must be uniform.

(7) Julienne. You will use a carrot cut into 1/8- by 1/8- by 2- inch strips (matchsticks). Your strips should be as evenly squared as possible. You will be allowed only a slight variance.

(8) Batonette or French Fry. You will use a potato cut into 1/4- by 1/4- by 2-inch strips. Your strips should be as evenly squared as possible. You will be allowed only a slight variance.

f. Chicken is a popular meat item for diners, and it is used often in the dining facility. As the price of meat continues to rise, the cost of purchasing cut meats also rises; however, bulk

meats remain less expensive than cut meats. You may be called upon as a Senior First Cook to trim, bone, portion, or provide basic butchering to a bulk meat item. It is important that you know certain butchering skills. Chicken being the most popular meat item, you need to know the different methods for portioning a bird. Always begin with a washed and trimmed bird.

(1) To remove the breast from a whole chicken, first split the skin along and in between the two breasts. Then remove skin from the bird by gently pulling and cutting if necessary. Next, remove the wishbone. Next, begin making cuts along the breastbone and the breast, pulling off the breast meat as you cut. Finally, remove the boneless chicken breast by cutting the breast from the wing.

(2) After the breast is removed from the chicken, it is cleaned, and the fillet is removed. The sinew is removed from the fillet. Trim and reshape the breast. To make a pocket in the breast, first lay the breast on a clean, dry cutting board. Next, with the largest end of the breast facing you, slowly insert the tip of your cook's knife into the breast. Finally, slowly push the knife into the breast, being careful not to puncture through the top or bottom, until the knife reaches about 1/4 inch from the tip of the breast.

(3) To portion a whole chicken, first make two parallel cuts down and through each side of the backbone. Next, remove the small bone that connects the two breastbones together by "popping" it out. Next, cut the chicken into halves. Finally, portion each part of the chicken.

5. Using Correct Equipment and Measuring Skills

a. Success in cooking requires accuracy at all times. The quality of your final product depends on how you use your equipment. When a recipe requires 2 ounces, it means 2 ounces; not a handful. Understanding your equipment and how to use it will ensure nutritionally adequate food items.

b. A scale must be balanced before weighing an item. You must check the scale for correct balance. With the scoop in place and the gradient bar weight set to zero, the balance beam should be level (straight across). Scales are more accurate than measuring utensils and should be used when available.

c. When using measuring utensils, you must use the proper methods of measuring different ingredients to ensure accuracy. The following explains the various methods of measuring ingredients:

(1) Measuring flour. Always sift flour before measuring to remove any impurities. Fill the measuring device and level with a straight edge instrument. Do not pack or tap the measuring device.

(2) Measuring brown sugar. Pack measuring device firmly with enough brown sugar to hold a shape when removed. If sugar is lumpy, roll with a rolling pin to break up any lumps before measuring.

(3) Measuring milk, nonfat dry. Stir lightly with a fork or spoon and place into measuring device. Do not shake the utensil. Level with a straight edge instrument.

(4) Measuring sugar, granulated. Fill measuring device without shaking. Level with a straight edge instrument. If sugar is lumpy, sift before measuring.

(5) Measuring liquid. Place the measuring device on a flat, level surface and fill with liquid to the desired level. Take measurements at eye level.

(6) Measuring baking powder or similar dry ingredients. Lightly stir before measuring. Do not press measuring device against the side of the container. This will pack the product. Level with a straight edge instrument.

(7) Measuring solid fat. Press fat firmly into measuring device. Level with a straight edge instrument. Melt fat before measuring if the recipe allows.

6. Food Preparation

a. Serving Meat.

(1) Fresh (Frozen) Meat. Army dining facilities use mostly portion-controlled, boneless beef. After the beef is boned, it is broken down and portioned into cuts such as steaks, roasts, diced beef, formed beef patties, and ground beef. Boneless beef requires less storage space, weighs less, and is easier to handle and prepare. Other meats served in dining facilities are portioned and formed cuts of veal, lamb, and pork.

(2) Variety Meat. Liver and chitterlings, although meat, are classified as variety meat or meat specialties.

(3) Prepared Meat. Luncheon meat, frankfurters, and sausages are examples of prepared or ready-to-serve meats served in dining facilities.

(4) Cured or Smoked Meat. Cured meat, such as corned beef, is treated with salt or with some other natural or chemical curing agent. Smoked meat is meat cured with smoke. Smoking adds to the keeping qualities and flavor of the meat. The principal types of smoked meat are ham, bacon, and dried beef. (Most dried beef is smoked, although some is cured.)

(5) Dehydrated Meat. Dehydration is the process of preservation through water removal, such as freeze dehydration. Examples of available products include beef patties, beefsteaks, chicken, and pork chops as used in the B-Ration.

b. Cooking Meat. Meat is an important part of the soldier's diet and nutritional needs. For this reason it must be prepared, cooked, and served properly. Less-tender cuts of meat can be highly acceptable when prepared according to the proper recipe. Care must be taken as meat can be ruined by overcooking, resulting in excessive shrinkage and loss of valuable nutrients.

(1) Cooking Temperatures. Meats must be cooked at the temperature prescribed in the recipe. Meat cooked at a moderate temperature has less cooking loss, is juicier, and produces a better-finished product than meat cooked at a higher temperature. Table 1 below presents ranges of cooking temperatures.

Temperatures	Category
250 – 275 F	Very slow
300 – 325 F	Slow
350 – 375 F	Moderate
400 – 425 F	Hot
450 – 475 F	Very Hot
500 – 524 F	Extremely Hot

Table 1-1. Cooking temperatures.

(2) Degrees of Doneness. The desired degree of doneness varies with the type of meat cooked. Beef and lamb can be served rare, medium, or well done; veal can be medium to well done; and pork must be well done. Fresh pork must be cooked to an internal temperature of 150 degrees to kill the organisms that cause trichinosis. The exact temperature to which you cook pork will depend on the recipe card. Cook rare roast beef or rare beefsteak to an internal temperature consistent with the schedule in TB MED 530. Consult TB MED 530 for additional guidance in the preparation of rare roast beef. There are three methods of checking the degree of doneness:

(a) Meat Thermometer. Always use a thermometer, if available, to check the internal temperature of the meat. Meat should be cooked until the internal temperature reaches the temperature given in the recipe.

(b) Time-weight Ratio. If a thermometer is not available, doneness can be determined by cooking the product at the prescribed temperature for a given number of minutes for each pound of meat.

(c) Fork Test. Stick a steel fork into the center of the meat. Note the color of the juices that come out of the meat. Red means the meat is rare, and pink means it is medium. Brown means well done. Do not puncture the meat too much, or too much juice will be lost. This test is acceptable but not recommended. It is best used along with the time-weight ratio-method.

(3) Seasoning. Some meats are seasoned before cooking, and others are seasoned during the cooking process. Season all meats cooked by moist heat and meat dishes, such as meat loaf and Salisbury steak (cooked with dry heat), before cooking. This allows the seasoning to cook into the meat and improve the flavor of the finished product. Lightly season a roast cooked by dry heat before you cook it. Never season meat to be grilled before you cook it because salt tends to draw out the meat juices. When juices are drawn from the meat, the meat must be overcooked to develop the color. When grilling or frying, season the browned side, then cook the other side and season it.

(4) Thawing and Tempering Frozen Meat. Recipes in TM 10-412 are for thawed or tempered meat unless otherwise indicated. Thawing means to raise, under controlled conditions, the internal temperature of frozen meat to a level above 30 degrees Fahrenheit. Tempering means to raise, under controlled conditions, the internal temperature of frozen meat to about 26 – 28 degrees Fahrenheit. This temperature range allows you to separate and handle frozen meat. Thaw or temper meat before cooking it to shorten the cooking time and to improve the quality of the finished product. Keep meat covered while thawing or tempering, and make sure there is ample room between the frozen pieces to permit good air circulation. Meat should be thawed in a manner that does not permit cross-contamination. Do not thaw or temper meat at room temperature. DO NOT refreeze thawed or tempered meat.

c. Cooking Meat by Dry Heat.

(1) Dry-heat cooking is achieved when the product is cooked without the addition of an outside liquid. Methods of dry heat cooking are described in this paragraph. Roasting and Baking both refer to cooking by dry heat in an oven. The meat is usually uncovered in roasting. The meat may be either covered or uncovered in baking. The term used in specific cases depends on the type of meat being cooked. For example, the term “baked” is used with meatloaf, Salisbury steak, and ham (smoked and nonsmoked). The term “roasting” is used with most nonsmoked meats cooked in the oven by dry heat.

(2) For roasting, place the roast fat-side up so that the fat will baste the meat as it cooks. If possible, cook roasts or hams that are about the same size so that all of them will finish cooking at the same time.

(3) Insert a meat thermometer into the thickest part of a roast. When it is necessary to cook roasts or hams of varying sizes at the same time, insert the thermometer in the thickest part of the smallest roast. Keep the thermometer probe away from fat pockets and bone. Either may cause an incorrect reading. When the thermometer registers the desired temperature (rare, medium, or well-done), remove the smallest roast to prevent overcooking. Then insert the thermometer in the thickest part of the smallest roast remaining in the oven. Repeat this procedure until all of the roasts are done.

(4) Remove roasts from the oven 20 minutes before serving so that the meat can firm up before it is carved or sliced.

d. Grilling. Grilling can be accomplished on a grill, on a range, or in a tilting fry pan. The grill should be heated to the temperature prescribed in TM 10-412 for the product being prepared. The temperature is checked by use of a grill thermometer. Drain excess grease and other accumulations frequently for best product results.

e. Deep-Fat Frying. Meat that is to be deep fat fried is coated with batter or some kind of breading material. It is then cooked in fat heated to a temperature of between 350 degrees Fahrenheit and 360 degrees. Some meat items, such as breaded veal steaks or cutlets and breaded pork chops, are browned in deep fat, drained, and then placed in an oven to finish

cooking by baking. Use a wire basket to lower the food into the fat and to remove the food when it is done. Do not overfill the wire basket because loose breading will fall into the fat. Always lower a filled basket into the fat slowly to prevent chilling the fat. If the fat is too hot, the outside of the food will scorch and the food will not cook through. If the fat is not hot enough, the outside of the food will become greasy and unpalatable even though the item may be cooked. Cooking fats break down for a variety of reasons: Sometimes the fat is allowed to get too hot during cooking; sometimes the fat is used to cook fatty foods such as bacon; and sometimes breading materials or food particles are allowed to accumulate in the fat. (Fat should be filtered after each meal.) Also, sometimes fat is allowed to get too old before it is replaced.

f. Panfrying. Panfry meat by cooking it slowly and uncovered on top of the range. Use only enough fat to keep the meat from sticking or burning. Slice meat thinly for frying. Cook it at a moderate temperature and turn it occasionally. Some recipes call for the meat to be rolled in seasoned flour before frying.

g. Cooking Meat by Moist Heat. Simmering is cooking in a liquid at a temperature just below the boiling point. Meat cooked by moist heat is simmered, not boiled. Boiling toughens meat and destroys its flavor, food value, and shape. This method is used to cook large, non-browned pieces of meat such as corned beef.

h. Braising. To braise meat, first brown it either in its own fat or in a small amount of added fat. Then simmer it in a small amount of additional liquid. The recipe may or may not call for the meat to be rolled in seasoned flour before browning. Meat can be braised on top of the range, in the oven, in a tilting fry pan, or in a steam-jacketed kettle. After adding a small amount of liquid, cover the pan to keep in the moisture. Braised liver is an example of braised meat.

i. Stewing. For stewing, meat is cut into small, uniform pieces. The recipe specifies if the meat is to be browned before adding the liquid. Browned meat may or may not have to be rolled in seasoned flour. More liquid is required for stewing than for braising. Cover the meat, and simmer it on top of the range or in a steam-jacketed kettle. After the meat is tender, add diced or sliced raw vegetables, if required.

j. Preparing Dehydrated Meat. Dehydrated meat includes uncooked beef patties, diced beef, beefsteaks, and pork chops. You can rehydrate meat ahead of cooking time and keep it in the refrigerator, or you can cook it immediately after rehydration. Rehydration is done following the manufacturer's instructions. The temperature of the water used and the time required for rehydration varies with each product. After the meat has been rehydrated, it is drained and handled as fresh meat to prevent spoilage.

k. Serving Poultry. The two main types of poultry served in dining facilities are chicken and turkey. Broiler-fryer chickens are received frozen, either in whole or cut-up condition. Turkeys are received frozen, in either whole (ready to cook) or boneless condition. The whole, ready-to-cook turkey has the giblets (liver, heart, and gizzard) and neck wrapped in the cavity of the carcass. Boneless turkeys are received in cooked, molded, encased, or raw-tied and netted. Other types of poultry that are served infrequently include duck and Cornish hens.

l. Cooking Poultry. Poultry is always served well done. The methods used to cook poultry are basically the same as those used to cook meat. Use moderate heat to develop maximum flavor, tenderness, color, and juiciness, regardless of the type and age of the bird. High heat will harden and toughen the protein, shrink the muscles, and drive out the juices. This produces a less palatable product. As a rule, cook young, tender birds by dry heat. Cook mature, less tender birds by moist heat. However, TM 10-412 contains several recipes for cooking young chickens and turkeys by moist-heat methods.

(1) Thawing and Tempering Frozen Poultry. Allow enough time for poultry to temper before preparing it. Temper frozen poultry in the rapid thaw or tempering refrigerator in the same manner as meats. Separate and cover the birds, and place them on trays. Set the trays on refrigerator shelves so that the air can circulate around the birds to thaw them. Frozen 3-pound broiler fryers require 18 to 20 hours to thaw in the refrigerator. Frozen turkeys weighing more than 16 pounds thaw in three to four days. Turkeys under 16 pounds thaw in two to three days. Although complete thawing before cooking is preferable, you may cook turkeys before they are completely thawed if you lower the oven temperature and allow more cooking time. DO NOT refreeze thawed or tempered poultry.

(2) Cooking Poultry by Dry Heat. Frying and roasting are two dry-heat methods for cooking poultry. Some specific guidance is given in this paragraph.

(a) Cutting Chicken for Frying. Whole broiler-fryers must be cut into frying-size pieces. To quarter a broiler-fryer, begin by placing the chicken on its side. Then, place the knife under the tail and cut close to the backbone from vent to neck, freeing one side of the backbone. Next, place the knife above the tail and cut close to the backbone from vent to neck. Then remove the backbone. Cut the cartilage to the breastbone and pop out the breastbone. Then cut the chicken in half and cut each half to separate the leg and thigh from the breast and wing. To cut a broiler-fryer into serving-size pieces, begin by placing the chicken on its side. Then remove the wing at the joint. Remove the leg and thigh section at the joint. Then turn the chicken over and remove the other leg and thigh section and wing. Separate the legs and thighs at the joints. Remove the back. Then cut the tail from the back and break the back in half. Cut the cartilage and pop out the breastbone. Cut the breast in half.

(b) Roasting a Whole Turkey. Wash the turkey inside and out under cold, running water, and drain the turkey thoroughly. Rub the turkey cavity with salt and pepper and rub the exterior with oil or shortening. Preheat the oven to 325 degrees Fahrenheit. Insert the meat thermometer in the center of the inside thigh muscle. Roast the turkey uncovered and without added water until the thermometer registers 170 to 175 degrees Fahrenheit. Baste it occasionally with drippings.

(3) Cooking Poultry by Moist Heat. Braising or stewing are moist-heat cooking methods. Moist heat is usually used to cook poultry that is not tender enough to fry or roast. Recipes, such as country-style chicken, call for braising young, tender chickens. This is done to vary the menu, not tenderize the meat. Boneless, cooked, frozen turkeys are also reheated by moist heat.

(a) Braising. Braising poultry is similar to braising meat. First, dredge drained pieces in seasoned flour, and shake off the excess. Brown the chicken pieces in shortening, then finish the cooking process according to the recipe.

(b) Stewing. When poultry is to be used in recipes such as salad, potpie, or à la king, it is stewed first. The item is then cooled and the meat removed from the bones and cut into pieces. The size of the pieces will vary from ½" to 1", depending on the recipe you follow. Keep the stock to use in sauce, gravy, or soup. If boneless, frozen, cooked turkey is used, thaw it and dice it into 1" pieces.

(4) Prepared Dehydrated Cooked Chicken. Chicken pieces are rehydrated according to the manufacturer's instructions. After dehydrated cooked chicken pieces are rehydrated, use them the same as fresh cooked and boned chicken.

m. Serving Seafood. Fish and seafood are generally purchased in frozen or canned form. Fresh fish are highly perishable. For this reason, the Armed Forces purchase them only in limited quantities.

(1) Frozen Fish. Frozen fish include fish sticks, fish fillets, and fish steaks. Some come breaded and ready to cook. Others require preparation in the dining facility. Fish steaks are cross sections of a large dressed fish. A fish steak may be boneless, or it may contain the cross section of the backbone in the center of the steak. Fillets are the meaty sides of the fish cut lengthwise away from the backbone and are practically boneless.

(2) Crustaceans and Shellfish. Crustaceans and shellfish are delivered frozen. They include shrimp (crustacean), oysters, and scallops (shellfish).

(3) Dehydrated Fish and Seafood. Dehydrated fish and seafood do not require refrigeration until after they have been rehydrated. Follow manufacturer's preparation instructions for best results.

(4) Cooking Fish. Usually fish is cooked by the dry-heat method. For variety, some recipes use the moist-heat method. Cook fish so that the required cooking time ends as close to the serving time as possible. When fish is overcooked or kept warm in an oven after it has been cooked, it becomes hard and dry and loses its flavor. Fish is done when the flesh separates or flakes easily with a fork.

(5) Handling Frozen Seafood. Cook frozen, breaded seafood items from the frozen state. Nonbreaded steaks and fillets must be tempered in the refrigerators so that the pieces can be separated. TM 10-412 contains numerous recipes for preparing nonbreaded frozen seafood as well as the breaded items.

(6) Cooking Seafood. Generally it is best to fry lean fish, such as haddock or flounder, and broil or bake fat fish, such as salmon or mackerel; however, lean fish can be baked if it is basted frequently with melted fat or if it is cooked with a sauce. TM 10-412 contains several

recipes for preparing canned salmon and tuna. Since these items are already cooked, they can be used in a variety of salads.

(7) Cooking Dehydrated and Freeze-dried Fish and Shrimp. Dehydrated seafood items are high quality products when handled properly. The two primary items in the Army system are fish squares and shrimp.

(a) Fish Squares. To rehydrate the fish squares, follow the manufacturer's instructions. The item is then prepared according to TM 10-412 the same as for a like fresh item. Once cooked, however, the product must be handled with care as it will fall apart more easily than a fresh item.

(b) Shrimp. Rehydrate cooked shrimp according to the manufacturer's instructions. Prepare rehydrated shrimp by the recipes in TM 10-412 recipe in the same manner as you would prepare the fresh item.

n. Carving. Let roasts and poultry stand for 15 to 30 minutes before carving them so that the meat will be firm and not fall apart. Meat should be trimmed in the kitchen and carved on the serving line. Follow these rules: Always use clean, sanitized equipment; use the proper knife for the job; keep knives sharp; use a meat fork; and arrange meat portions in a serving pan so that you can easily remove slices without breaking them. The two carving methods are by hand or by a mechanical device.

(1) Hand Carving. Hand carving on the serving line provides the best product presentation but requires skill and training to carve slices of equal size. Meat, fish, and poultry recipes indicate serving size portions. Always cut across the grain of the meat and away from the body. When carving a roast turkey, for example, begin by removing a leg. Separate the thigh from the drumstick and remove a wing. Then, make a cut toward the ribs on a line between the wing and thigh so that slices will fall free when you cut the breast. Slice the breast parallel to the breastbone.

(2) Mechanical Carving. As an alternate to hand carving, a mechanical slicing machine may be used.

o. Rice, Pasta Products, and Dressings. Rice is served with dishes such as chili con carne, chop suey, and creole beef balls. It may also be added to some soups. Rice can be substituted for potatoes or added to the main menu as an alternative starch for diners. To preserve valuable vitamins and minerals, do not blanch, wash, or rinse rice after it has been cooked. To prevent gumminess, never uncover the rice cooking pot or pan during the simmering period. There are several ways to prepare and cook rice. The most common is steaming. Other ways to prepare rice are the oven method and use of the pressure cooker. These methods are covered in more detail in TM 10-412.

(1) Pasta Products. Macaroni, noodles, and spaghetti are popular pasta products. They are not substituted for potatoes as often as rice, but they can be used in many different ways. Because pasta products have a bland flavor, they require seasonings or sauces. Macaroni is used

in dishes such as chili and macaroni, macaroni and cheese, or macaroni salad. Noodles are used in beef noodles, chow mein, noodles Jefferson, and lasagna. Spaghetti and meatballs or meat sauce are a standard, yet dishes such as Yakisobo provide a highly acceptable alternative. Some rules for cooking and serving pasta products are as follows: Cook as close to serving time as possible; slowly add pasta to boiling water to which salt and oil have already been added, and stir constantly until the water begins to boil again; stir the pasta occasionally; cook the pasta only until tender. Test frequently for doneness by pressing a piece against the side of the pot. If it breaks evenly and clearly, then the pasta is done. Rinse the pasta in cold water. (Rinsing is not necessary if you serve macaroni or spaghetti immediately with a sauce or butter.) To reheat the pasta before serving, place the desired quantity in a wire basket. Lower the basket into boiling water for two to three minutes. Drain well, and place in a greased steam table insert.

(2) Dressings. Serve dressings as an accompaniment to poultry, meats, and fish. Bake dressings in a roasting pan in a moderate oven. Do not stuff the cavity of poultry. Dressing should be moist but never soggy. NOTE: To prevent sogginess, never use hot stock.

(a) Poultry stuffing's (dressings), stuffed meats, and stuffing's containing meat must be cooked immediately after preparation to heat all parts of the food to at least 165 degrees Fahrenheit with no interruption of the cooking process. All such products should be cooked separately.

(b) The two basic types of dressings prepared in Army dining facilities are corn bread dressing and savory bread dressing. Guidance on how to prepare these products is provided in TM 10-412, Section O.

p. Fruits and Vegetables. Fruits and vegetables are a good source of fiber and provide a large part of the vitamins and minerals needed in a well-balanced diet. Therefore, they should be prepared so that they retain maximum nutritive value. Fruits and vegetables may be eaten raw, but they are often cooked to improve digestibility, palatability, and acceptability.

(1) Fruits. Fruits of all kinds are excellent for salads or desserts and should be served fresh at every meal in the dining facility. Fruits are purchased canned, frozen, and dehydrated for use as toppings and fillings and in gelatins. Fruits are a large part of the breakfast fitness bar. When certain fresh fruits are out of season, canned or frozen fruits can be served for variety. Water-packed or unsweetened fruits should be offered when possible.

(2) Vegetables. Vegetables are purchased fresh, frozen, canned, and dehydrated for use in dining facilities. Various methods of serving can be used. Some of the most popular variations on vegetables include au gratin, scalloped, glazed, stuffed, and deep fat fried preparation.

(3) Cleaning. Thoroughly clean all fresh fruits and vegetables before using them. Trim vegetables, and remove all undesirable leaves and coarse stems. Wash usable leaves several times to remove sand and grit. Wash greens in a sink with enough cool water to cover the vegetables. If greens have insects, add 1 tablespoon of salt per gallon of water. Wash the vegetables by lifting in an up-and-down motion. Since some minerals and vitamins in fresh

fruits and vegetables are water-soluble they should not be left in the water for more than six to seven minutes. Use a vegetable brush to clean celery, carrots, beets, and potatoes when they are not peeled. Also, use disinfectant on fruits and vegetables purchased in overseas areas where unapproved fertilizers are used. To use the disinfectant, follow the instructions on the disinfectant container.

(4) Preparing. Fruits and vegetables are prepared for serving by simply washing, peeling, or chopping. Vegetables can be peeled manually or with a mechanical vegetable peeler.

(5) Cutting. Recipe directions may call for vegetables to be sliced, diced, cubed, shredded, or cut in some other manner before serving or cooking.

(6) Preserving. Do not use sulfating agents to preserve food. Refrigerate vegetables until cooked or served.

(7) Cooking Methods. During cooking, care must be taken to preserve the color, texture, and nutritional value of vegetables. They should be cooked only until tender, at which point nutritional value, flavor, and appearance are maximized. Cook them in small batches as close to serving time as possible. Stagger the starting time of each batch to maintain a continuous cooking operation up to and throughout the serving period. Use various seasonings as directed in the recipe.

(a) Boiling and Simmering. Both boiling and simmering are methods commonly used to cook vegetables. Guidelines for boiling and simmering vegetables are in TM 10-412. The amount of liquid needed and the approximate cooking time are also given. If cooked vegetables must be held for any length of time, they should be refrigerated. Liquids from cooked vegetables should be used in soups, sauces, or gravies for added flavor and to prevent loss of nutrients from the vegetables. Additional hints for cooking vegetables include the following: Green vegetables can be cooked covered or uncovered. Follow the cooking times in the recipe. Yellow vegetables such as squash, wax beans, and corn should be covered. This reduces the cooking time and reduces the loss of nutritional value and color in the vegetables. White vegetables should be cooked covered or uncovered as required by the recipes in TM 10-412. Overcooking may cause them to turn a grayish or brownish color. Red cabbage should be cooked uncovered. Cook beets in their skins. Beets will retain their color if the taproots and about 2 inches of stem are left intact. The skin is easily removed after cooking. Also, adding a small amount of vinegar or lemon juice to beets or red cabbage after cooking can improve the flavor and color.

(b) Baking. Baking vegetables in their skins preserves their flavor and nutrients. Do not over-bake, though, or both will be destroyed. Proper peeling of vegetables also helps reduce the loss of nutrients. White potatoes, sweet potatoes, and tomatoes are particularly adaptable to baking. Potatoes should be scrubbed thoroughly, dried, and pricked with a fork before baking. Follow baking temperatures in TM 10-412.

(c) Panfrying or sautéing. Panfrying or saut—ing is recommended for cooking juicy vegetables, particularly those that are shredded. Place them in a covered pan with a small

amount of fat. This way they will cook more or less in the steam from their own juices. Serve the liquid with the vegetables so that any minerals and vitamins are consumed with the vegetables. You may panfry or saut— vegetables such as cabbage, corn, onions, mushrooms, squash, tomatoes, and white potatoes on top of the range. Do not overcook or cook at too high a temperature or you will destroy vitamins and lose minerals.

(d) Steaming. When vegetables are cooked under pressure in a steam cooker, there is minimal loss of minerals or vitamins. Another advantage of steaming is that the vegetables keep their original shape. Steam them only until they are slightly undercooked. The remaining heat in the vegetables will complete the cooking. TM 10-412 gives guidelines for using steam cookers.

(e) Deep-fat Frying. Potatoes, onions, and eggplant are often deep fat fried. These items may be fried without first partially cooking them. Some recipes, such as that for rissole potatoes, call for browning the vegetable in deep fat and then placing it in the oven to finish cooking.

(8) Frozen Vegetables. A variety of frozen vegetables is available year-round. The vegetables come ready to cook. No time is required for cleaning, peeling, or other preparation. Usually they are boiled or steamed. Some rules for preparing and cooking frozen vegetables are given below.

(a) Preparing. Frozen vegetables are perishable. Keep them frozen until cooking time except for leafy green vegetables and corn on the cob. Let these vegetables thaw partially so that the outside will not overcook before the inside defrosts.

(b) Cooking. Add frozen vegetables to boiling, salted water. Start the cooking time when the water comes to a boil the second time. Break up solid blocks of vegetables by tapping the package lightly before opening. This will shorten defrosting time in the water. Follow the guidelines on the package or in TM 10-412 for the cooking time and the amount of water to use. Do not overcook!

(9) Canned Vegetables. Commercially canned vegetables are harvested at the peak of their maturity and are processed within a few hours of harvesting. The vegetables are high quality; therefore, with proper heating and seasoning, they are highly acceptable. Canned vegetables require no further cooking. Prepare them in small batches to keep them from breaking up and becoming discolored. For further information on preparing canned vegetables, see TM 10-412.

(10) Dried Legumes. Dried legumes, such as navy beans, kidney beans, lima beans, and black-eyed peas, are a source of protein. Legumes should be simmered and not boiled. Boiling will toughen the protein. TM 10-412 has several recipes for dishes made with dried legumes.

(11) Dehydrated Vegetables. Vegetables such as onions, white potatoes, sweet potatoes, peas, peppers, cabbage, and green beans can be dehydrated. Prepare these vegetables

as discussed below. Additional information on the use of dehydrated vegetables is on recipe cards Q-G-5 and A-11.

(a) Onions. Dehydrated chopped onions can be used in any recipe which specifies onions, dry or chopped. To use them as raw onions, reconstitute them by adding warm water and letting them stand for 20 to 30 minutes. For seasoning, dehydrated onions can be added directly to stews, soups, and sauces without reconstitution. Reconstituted onions can be added to meat loaves and croquettes. One pound (1-½ quarts loose) of dehydrated onions is equivalent to 8 pounds of prepared onions.

(b) White Potatoes. Dehydrated white potatoes are available in ground, flaked, diced, and sliced form. The methods for preparing potatoes are as follows:

1 Ground or flaked: To prepare instant potatoes from granules or flakes, blend potato granules and nonfat dry milk together. Combine boiling water, butter or margarine, and salt in a mixing bowl. Stir to blend. Rapidly add dry mixture to the liquid, and mix on a low speed for 30 seconds. Stop the machine, and scrape the sides and bottom of the bowl. Add pepper. Whip on high speed for about two minutes or until the potatoes are light and fluffy. Serve mashed potatoes hot.

2 Diced or Sliced: Reconstitute dehydrated sliced potatoes by adding them to salted boiling water. Cover and simmer them for 15 to 25 minutes, until tender. One number 10 can makes 20 servings. They can then be grilled or a sauce added for such items as potatoes au gratin.

(c) Sweet Potatoes. Reconstitute dehydrated sweet potatoes in hot water with butter. One number 10 can makes 40 servings.

(d) Peppers. Dehydrated peppers can be used in any recipe calling for sweet diced peppers or sweet chopped peppers. Dehydrated peppers used in salads or other uncooked dishes must be soaked in cold water for two to six hours. They can then be used as fresh peppers. Dehydrated peppers used in soup, stew, or in any other cooked dish containing a large amount of liquid can be added directly to the other ingredients. They do not need to be soaked first. When used in a cooked dish that contains only a small amount of liquid, they must be soaked in cold water for one hour before they are combined with other ingredients. One pound of dehydrated peppers is equivalent to 6 pounds of fresh, trimmed, sweet peppers. One ounce (three-fourths cup) of dehydrated peppers, yields 6 ounces (1 2/3 cups) of diced peppers when reconstituted.

(e) Peas. To reconstitute dehydrated, cooked, compressed peas, place them in a pan with salt and butter. Add enough boiling water to cover them. Stir the peas to moisten them, cover the pan, and let them stand for 10 minutes before serving. A number 2½ can yields 25 servings.

(f) Cabbage. Reconstitute dehydrated raw cabbage by soaking it in cold water for three hours. Drain the water before using the cabbage. A number 2 ½ can equals 2 ½ pounds of fresh cabbage.

(g) Green Beans. Dehydrated green beans are frozen before dehydration to preserve the natural color, nutrients, and flavor. To reconstitute, place the beans in water and cook them for 22 minutes.

q. Salads and Salad Dressings. Green, leafy vegetables provide a balance of nutrients in our diet and should be a part of the lunch and dinner meal. Salads are vitamin-rich, high in fiber and low in calories, and they add color to the meal. Salad bars are an excellent way to provide a wide variety of fresh or canned vegetables and permit diners to select those that they desire.

(1) Salads. Salads increase the variety, acceptability, and nutritional content of the meal. Salads and salad bars should be offered twice a day in the dining facility as an accompaniment to the main course. Recipes for salads listed in the master menu are in TM 10-412. Some general rules for preparing salads are as follows: Make salads simple, but orderly and neat. If the recipe calls for ingredients to be sliced, make the slices thin and even. If the recipe calls for the ingredients to be cut in wedges or chunks, cut all the pieces the same size. Do not mince the principal ingredients. Dice or chop them into pieces approximately one-fourth of an inch long to give texture to the salad. Use highly flavored foods such as green peppers and onions sparingly. The strong flavors tend to overpower the more delicate flavors of the other ingredients. Store and chill salad ingredients in covered containers. Have the dressing compliment the salad, both in type and flavor. Use a rich dressing for a light salad and a light dressing for a heavy salad. Coleslaw may have either a light or heavy dressing, depending on how it best compliments the rest of the menu. Avoid over garnishing. See that the foods in salads contrast in color, shape, texture, and flavor. Consider flavor and color combinations from the standpoint of palatability and attractive appearance. For example, the color of tomatoes does not combine attractively with the color of beets. A cherry gelatin salad served on fresh lettuce is an example of an attractive food contrasting in color, shape, texture, and flavor.

(a) Salad Vegetables. Both raw and cooked vegetables can be used in salads. Cooked or canned vegetables are normally drained according to the procedures in TM 10-412. Some suggestions for preparing commonly used raw vegetables are given here.

(b) Greens, Lettuce, and Cabbage. These items should be culled and washed gently but thoroughly. Place them in ice water, if wilted, to help restore crispness. Items should then be drained and torn (lettuce) or cut into bite-sized pieces according to the specific recipe.

(c) Celery. Stalks should be separated and washed thoroughly. There is a tendency to trim excessive portions of the stalks and discard them. In most cases only the root portion should be discarded. The leafy portion can be used in tossed salads or for soup stock. The main stalk is then cut or diced in accordance with the intended use. For example, stuffed celery would be cut approximately 2 inches long using the full width, while celery sticks would be in 2”-long strips.

(d) Cucumbers. The cucumber can be served with or without the peelings. Cucumber slices for tossed salad, for a relish tray, or cucumber salad would normally be served with the peeling. Cucumber sticks would normally be peeled first.

(e) Carrots. Carrots can be used peeled or just washed thoroughly. They can also be used raw or cooked depending on the type salad being prepared.

(f) Onions. Dry onions are always peeled and sliced or diced according to the specific recipe being used. Whole rings are used primarily as garnish or for use on hamburgers. Green onions are diced for salads and served whole for relish trays.

(g) Peppers. Peppers (sweet, banana, hot) can be served in slices for relish trays or diced for salads. In all cases the stem and seeds are removed and the item washed prior to processing.

(h) Radishes and Tomatoes. These items are washed and sliced or diced depending on whether they will be used in a salad or as a relish tray.

(2) Salad Fruits. You can use canned, frozen, dried, and fresh fruits in salads. Most fruit can be used peeled or unpeeled. Follow the procedures in this paragraph for using canned, frozen, dried, and fresh fruits.

(a) Canned and Frozen. Canned and frozen fruits should be drained before use. Use the fruit and liquid as specified in the recipe.

(b) Dried. Wash and drain raisins, prunes, and other dried fruits thoroughly. Prepare them according to the recipe.

(c) Fresh. Fresh fruits should be ripe, firm, and unblemished. The fruit, except bananas, should be washed, drained thoroughly, and chilled before use.

(d) Apples and Bananas. Cut apples and bananas into bite-sized pieces or slices or as specified in the recipe. Follow the recipe carefully and keep the fruit from becoming discolored by using a natural antioxidant, such as lemon juice, as detailed in the applicable recipe.

(e) Citrus Fruits. Oranges and grapefruit can be peeled more easily if placed in hot water for a few minutes. Use a sharp knife to cut through the rind vertically in several places, and then pull off the rind a few sections at a time. The fruit should then be sliced or diced according to the specific recipe.

(f) Gelatin Salads. Gelatin salads are eye-catchers for almost any meal and are easy to prepare. Follow recipe directions for dissolving the gelatin. Add fruit (except fresh pineapple) and vegetables when the gelatin has thickened slightly. If ingredients are added before the gelatin has partially thickened, some of the ingredients will settle to the bottom. Gelatin salads can be molded in muffin tins and turned out as individual servings.

To free the salad, dip the bottoms of the muffin tins in hot water (150 – 160 degrees) for about one minute. If muffin tins are not available, mold the salad in flat pans and cut into individual servings.

(3) Combining Ingredients. How you combine salad ingredients will determine whether the end result is an appealing, fresh-looking salad or not. To combine salad ingredients, you should do the following: Handle the ingredients carefully. Over handling results in an unattractive salad. You should also mix or toss the salad lightly to avoid crushing or mashing the ingredients. Use a fork and spoon to toss the salad. Use a container large enough to toss the salad without crushing or spilling it. Use a basting spoon for blending soft ingredients such as fruit pieces and cottage cheese or potato salad. Mix the ingredients as close to serving time as possible. Use fresh, crisp lettuce leaves as a base for individual salads. Use an ice-cream scoop to transfer cottage cheese and other soft salads to the salad bowls. Arrange fruit sections neatly. Use a food-turner or pie- and cake-server to place gelatin salad on the salad plate. Arrange garnishes neatly. Never try to rearrange a salad.

(4) Salad Dressings. Salad dressing is an indispensable complement to a salad. It adds flavor, color, and nutrition. Serve dressings suitable in flavor and consistency. If possible, give the diner a choice of at least three different varieties of dressings. Always include low-calorie, low-fat dressings for fresh salads. When preparing French dressing, use a wire whip to beat the combined ingredients. Store the dressing in a covered container and beat or shake well before serving. The appearance of the salad dressing is just as important as the appearance of any other item on the serving line. The dressing must look fresh and appetizing and should be served in compressible dispensers, closed dispensers, or individual packs. Identify each dressing so that diners can make a choice.

(5) Salad Bars. Salad bars provide an excellent method to merchandise fresh fruits and vegetables and permit diners to build their own salad. Each dining facility SOP should address how the salad bar is to be established and the items to be included. Salad bars must be properly set up and maintained throughout the meal-serving period. Do not overstock fresh items on the bar. Use small serving pans, and replenish often. Do not forget pre-made salads such as potato, macaroni, and so forth. Sort, trim, core, stem, separate, and wash salad bar ingredients. Discard damaged or decayed items. For detailed instructions on preparing salad bar items, refer to TM 10-412 and to the information on salad vegetables in this lesson. Besides vegetables discussed earlier, Bermuda onions, green onions, cheese, croutons, bacon bits, mushrooms, olives, grated cheeses, chopped eggs, and many other items may be included to add variety and enhance the salad bar.

r. Desserts. Desserts are normally served with each lunch and dinner meal. In addition, breakfast pastries are highly accepted and could be considered as a dessert. Desserts are sometimes classified as heavy or light. They can be served hot or cold. The standard is to offer a variety of choices to the diner.

(1) Ice Cream. Current equipment authorizations and support from local commercial vendors provide the FSS a wide variety of choices to satisfy diner desires. Homemade ice cream

is not permitted because the raw eggs used as an ingredient may contain harmful bacteria. Choices include soft serve and specialty ice creams.

(a) Soft Serve. Soft serve ice cream comes in several flavors, such as vanilla, chocolate, and strawberry. If you have the equipment available, you can offer milk shakes. Another highly accepted option is yogurt. It comes in many flavors. In addition, the soft serve products can be enhanced with various toppings (for example, chocolate, strawberry, cherry, or coconut).

(b) Specialty Ice Creams. There is a wider variety of specialty (hard) ice creams. There are many flavors in individual serving cups, on sticks, and in cones. They must be kept frozen and removed from the freezer a few servings at a time. Ice cream freezers may be located so that the diner removes the product himself.

(2) Fruit. Fruits are an excellent dessert and provide soldiers with a nutritious alternative. They can be served alone or as a component in most other desserts (for example, in Jell-O, cake, cookies, pies, ice cream, or custards).

(a) Fresh Fruit. Fresh fruit is normally served whole or processed into a dessert. Fresh fruits served in dining facilities and suggestions for this preparation are in Chapter 20 of FM 10-23-2.

(b) Canned Fruit. Canned fruit can be served just as it comes from the can or used as a component of a dessert. When used as a dessert, chill for several hours or overnight before serving. Open cans as needed and place the fruits in individual dishes or serving pans.

(3) Gelatin Desserts. You can make gelatin desserts with fresh, frozen, or canned fruits. However, do not use fresh pineapple since it will keep the gelatin from setting. The aforementioned suggestions for preparing gelatin salads also apply to the gelatin desserts. To keep the gelatin cold, remove only one pan from the refrigerator at a time. Transfer the contents to individual serving dishes, and place them on the refrigerated counter.

(4) Shortcakes. Peach, strawberry, and raspberry shortcakes are made using shortcake biscuits or cake, fresh or frozen fruit, and dehydrated dessert topping. Thaw frozen fruit unopened in the refrigerator. Place the biscuits or cake and fruit topping in separate containers. When possible, make individual shortcakes as they are needed.

(5) Puddings. Make butterscotch, chocolate, and vanilla puddings from dessert powders and nonfat dry milk. After you make the pudding, pour it into serving pans and refrigerate it until serving time. Close to serving time, spoon the pudding into individual dishes, and place the dishes on the cold-food counter. Recipes for other puddings are in TM 10-412. Serve puddings, such as rice pudding or pudding cakes, hot or cold in individual serving dishes.

(6) Dessert Sauces and Toppings. You may serve dessert sauces with puddings, nonfrosted cakes, or ice cream. You will find recipes for dessert sauces in TM 10-412. Sauces include butterscotch, chocolate, lemon, orange, vanilla, and pineapple. Close to serving time,

spoon the sauce over the desserts that are served in individual dishes. You can also use dehydrated powdered topping. Reconstitute it following the directions on the package. Then cover the topping, and refrigerate it until you are ready to use it.

(7) Dehydrated Apples. Reconstitute dehydrated apples in boiling water. Add apples to water and bring to a boil. Stir the mixture once to moisten all apples thoroughly. Simmer apples for 10 to 15 minutes or until tender. Remove them from the heat, and use them in any recipe calling for prepared sliced apples.

(8) Crisps and Crunches . Make crisps and crunches by arranging sliced fruits, such as apples, apricots, cherries, peaches, or pineapples on sheet pans. Sprinkle dry ingredients on the fruit to form a topping. Bake crisps and crunches until the topping is golden brown and the fruit is tender. Serve them either warm or chilled. You may also serve them with ice cream. Specific recipes are in TM 10-412.

7. Summary. In this lesson you read about identifying the specific skills necessary to ensure high quality and nutritionally adequate food preparation and demonstrating proper techniques for instructing and supervising of the same. Other topics covered were three ways of inspecting food and how to in check for deterioration or damage. Also discussed were the main cause of wasted in storing food and some of the requirements of a TISA. A very big but under emphasized knowledge of the trait is how to properly sharpen knifes and what they are used for when preparing food was also discussed. The things you have learned here are part of being a better leader and being able to better help your soldiers.

PRACTICE EXERCISE

The following items will test your grasp of the material covered in this lesson. There is only one correct answer for each item. When you complete the exercise, check your answers with the answer key that follows. If you answer any item incorrectly, study again that part of the lesson that contains the portion involved.

1. True or False: You should season meats cooked with moist heat before you cook them.

   A. True
   B. False

2. What type of cooking is accomplished in a liquid at a temperature just below the boiling point.

   A. Panfrying
   B. Simmering
   C. Braising
   D. Stewing

3. What is the maximum temperature of milk and milk products brought to your dining facility in degrees Fahrenheit.

   A. 32
   B. 41
   C. 45
   D. 50

PRACTICE EXERCISE

ANSWER KEY AND FEEDBACK

Item Number	Correct Response	Reference
1	A	Lesson 1, para 6.b.(3)
2	B	Lesson 1, para 6.g.
3	C	Lesson 1, para 2.b.(2)

LESSON 2

NUTRITION/SKILLS DEVELOPMENT WORKSHOP

Critical Task: 101-524-3107

OVERVIEW

LESSON DESCRIPTION:

This lesson was designed to provide soldiers in the Food Service Specialist, Basic Noncommissioned Officer Course (BNCOC) with information on nutrition/skills development.

TERMINAL LEARNING OBJECTIVE:

ACTION: Students will develop work plans and identify techniques associated with preparing and presenting select food items.

CONDITION: In a self-study environment.

STANDARD: To demonstrate competency of this task, you must achieve a minimum score of 70 percent on the subcourse examination

REFERENCES The material contained in this lesson was derived from the following publications: FM 10-23-2 (Tactics, Techniques, and Procedures for Garrison Food Preparation and Class I Operations Management), AR 30-1 (The Army Food Service Program), TM 10-412 (Armed Forces Recipe Service and Index of Recipes), STP 10-92G25-SM-TG (Soldiers Manual and Trainers Guide for MOS 92G, and Food Service Specialist Skill Levels 2/3/4/5)

INTRODUCTION

As a Senior First Cook it is important that you know how to do everything that your subordinates are doing. Imagine being in the position of not being able to answer a basic question about a recipe! Imagine not being able to give prompt, accurate responses to employees who rely on you to be a competent and informed superior. This lesson is not being taught in a cooking lab environment, so pay particular attention to the techniques and information taught. We will begin with the 11 considerations of menu development.

1. Eleven Considerations of Developing a Menu. AR 30-1 outlines what must be considered when developing a menu. When developing your menus, you must take all into account to have a successful menu, and ensure that the menu is within the dietary guidelines. They are: 1) nutritional adequacy, 2) season of the year, 3) money, 4) supply factors, 5) soldier preference 6) personnel, 7) equipment, 8) holidays, 9) soldier activity, 10) variety, and 11) low-calorie items.

a. After deciding upon a menu, you will develop a work plan around that menu. Begin your work plan from the finished product; the time it is to be served. This is called backward planning and will give you a good idea as to when to start your product. You will need to take everything about that product into consideration, to include your skill level.

b. As your plan develops, you will have certain food items that can be prepped in advance called Mise en Place. The amount of time your product will be stored will depend on what items you can prep. Not all food items can be prepped in advance. For instance, you will not necessarily prep breaded chicken a day in advance.

c. Once you have decided on a menu, and you have developed a work plan, you will need to know how the food is to be presented. You learned earlier that sight is very important. How you present your food has an effect on your diners. You must take into consideration color, texture, cooking methods used, sauces and accompaniments, flavor, shape, temperature, and portion size. Look at your plate as a picture frame. When all the food is plated, you should have "flow".

d. Your foods should be arranged close together to retain heat, but at the same time, they must compliment each other. They should have a natural design and not look "dress right dress". Also, food items should not look as if they were individually placed on the plate. This gives the diner the impression that their food was handled too much. You will become familiar with such fresh ingredients as eggs, milk, and cheeses, all of which figure into your menu and menu considerations.

2. Eggs. The Preparation and Characteristics of eggs. A whole egg is made up of a yolk, white, and shell. A membrane lines the shell and forms an air cell at the large end of the egg.

a. The shell. The breed of the chicken determines the color of the shell. Shell color has no effect on the quality, cooking properties, or nutritive value of the egg. Composed primarily of calcium carbonate, the shell is very fragile. It is porous, which allows it to breathe. The porous nature of the shell allows loss of moisture, even if broken.

b. The egg white. This is the food and moisture source for the embryo in a fertilized egg. It accounts for 67 percent of the liquid weight of the egg. Egg white is made up of two parts. A thick white surrounds the yolk. A thinner, more liquid part is between the membrane and the thicker white. Albumin protein is the major component of the white. It also contains sulfur.

c. The egg yolk. The yolk is held centered in the egg by the Chalaza. They are the two white strands that are present when an egg is broken. The yolk is the unfertilized embryo in the egg. Yellow in color, the depth of the color will vary with the feed of the hen. It is high in fat and protein, and contains iron.

d. Although eggs are graded for quality, this does not address the issue of size. The grade of an egg does not relate to the size of the egg. The sizing of an egg is as follows:

Classification	Minimum Weight per Dozen
Jumbo	30 oz
Extra Large	27 oz
Large	24 oz
Medium	21 oz
Small	18 oz
Pee Wee	15 oz

Table 2-1 Egg Sizes

e. The most commonly used size in commercial and home cookery is large. The jumbo and extra large are sometimes used for breakfast eggs, poaching or frying. This size may also be preferred for scrambled eggs. Medium, small, and peewee eggs are rarely used in commercial cooking. Large eggs are the standard for recipes calling for a set number of eggs.

f. Fresh or shelled eggs. This is the preferred form for most breakfast cookery. In many kitchens fresh eggs are used for all production. Fresh eggs should be properly boxed. The best packaging for the commercial kitchen is fiberboard boxes. Eggs should be packed in the carton in snug-fitting trays. This will reduce the breakage.

g. Pasteurized eggs. They are of high quality and available in a number of forms. They are pasteurized in processing, reducing concerns about bacterial growth. Available as whole eggs, yolks, whites or whole eggs with extra yolks added, they can be purchased in cans or cartons. Frozen type should be thawed under refrigeration, which requires two days. Excellent for many types of baking, scrambling omelets, and use in other types of cooking requiring broken eggs.

h. Dehydrated eggs. These are used primarily for baking. Shelf stable until after opening.

3. Preparation. The primary purpose of exposing eggs to heat is the coagulation of the proteins. Exposure of an egg to higher temperatures than necessary to coagulate the proteins may achieve a more suitable serving and eating temperature.

a. A common occurrence in eggs, which are cooked and held for long periods of time, is development of a green color. This is particularly common in scrambled eggs held in hot tables. This is a result of the iron in the egg yolk reacting with sulfur in the egg white.

b. Egg whites are often beaten before being used. The purpose is to create a light, airy mass which will lighten the item it is part of. Egg whites foam better at room temperature. It is important that you do not over beat the whites. They will lose their lifting ability and will look dry and curled. A properly beaten egg white will look moist and shiny.

4. Milk. Different types of milk are widely used ingredients in cooking and baking. Whether acting as a primary or secondary component in a dish, they contribute in many ways to the character of the finished products. It can be purchased in many forms, all of which are various forms of fresh whole milk after processing.

a. Fresh whole milk. Fresh whole milk is what the cow gives naturally. To be termed fresh whole milk the most that can be added to it is Vitamin D. Nothing can be taken away. This is one of the many truly nutritious and wholesome natural products available.

b. Pasteurization and Homogenization. They are processes commonly used in milk production. Pasteurized milk has been heated to kill most bacteria present and then cooled. Most commercial milk and cream products are pasteurized. Homogenized milk is forced through a series of extremely small holes. This separates the fat particles into such small pieces they will remain suspended in the milk or cream.

c. Raw milk. This type of milk is rarely used in commercial kitchens. Produced by herds of dairy cattle certified to be disease-free and kept under strict sanitary conditions, this milk may be sold either raw or pasteurized.

d. Fortified milk. Commonly these have vitamins A and/or D and possibly, extra non-fat milk solids added to them. Other vitamins may be added to the milk, but all additions must be listed on the label.

e. Skim/Nonfat milk. It contains less than 0.5 percent fat. Skim and Lowfat milk cannot be considered an equal to whole milk.

f. Cream. Cream is a form of milk. The fat globules are more concentrated in it than whole milk. It is not uncommon in institutional cooking to use whole milk, in place of cream. When this is done there must be an addition of a thickening agent to replace the body that the cream would have given the dish. Cream is less likely to form a skin when heated or boiled and far more stable than milk in cooked sauces and soups.

g. Buttermilk. A fresh liquid milk (whole, lowfat, or 1 percent) cultured by the addition of bacteria. It has a rich, thick texture, and a tangy acid taste. Buttermilk can be used in recipes calling for soured milk.

h. Condensed milk. Made from whole milk with 60 percent of the water removed. The reduced milk is heavily sweetened with sugar and must contain a minimum of 8.5 percent butterfat. Condensed milk cannot replace other milk products unless the sugar content of the recipe is adjusted.

i. Dried milks. These milks have all moisture removed, creating a powder. They are available as either dried whole milk made from whole milk, or dried non-fat milk made from skim milk. The original type of dried milk is called regular.

5. Cheese. Cheese is a food produced by separating milk solids from whey by curdling,

causing the proteins to coagulate. This is done by the introduction of selected bacteria or rennet, an enzyme, into the milk. The curds are then drained, processed and cured or aged in a variety of ways. Cheese is composed of three major components: water, fat, and protein. The protein in cheese is derived from the milk solids. All cheeses are high in protein.

a. Unripened cheese. They are soft, white freshly made cheeses. These include cottage, baker's, ricotta, cream, neufchatel and mozzarella.

b. Semi-soft. They are more developed than unripened, but still have a generally buttery texture. These include fontina, bel paise, munster and brick.

c. Soft-ripened. They are ripened from the outside toward the center. These include brie, camembert, leiderkranz and both double and triple creme cheese.

d. Hardened ripen. They are cured cheeses that have a firm texture. These include cheddar, Colby, Monterey Jack, domestic Swiss, Gruyere and Carlsburg cheese.

e. Blue veined. They owe their flavor and appearance to the blue and green mold, which is variegated throughout the cheese. These include Roquefort, Stilton, Gorgonzola and blue.

f. Hard grating. They owe their flavor to a long aging period, as high as two years. These include Parmesan and romanos, which are often sold already grated.

g. Goat. They are made from goat's milk and are produced in a variety of forms in France called Chevre. Fresh, unaged chevre is the most popular, having a mild flavor, and a very white color, with a dry texture.

6. Sugar. There are different types of sugars you will become familiar with in cooking. Their main functions are to sweeten, tenderize, and improve the quality of foods being cooked or baked.

a. Brown sugar.

b. Granulated sugar.

c. Powdered sugar.

d. Honey.

7. Leavening agents. There are 5 different agents that act as leavening agents.

a. Baking soda.

b. Baking powder.

c. Tartrate powder.

d. Phosphate powder.

e. Yeast.

8. Fats and Oils. The difference between fats and oils is that fats are solid at room temperature and oils are liquid at room temperature. The most common varieties are:

a. Lard

b. Butter

c. Margarine

d. Vegetable shortening

e. Oil

9. Starches. There are various types of starches.

a. Cornstarch

b. Pregelatinized

c. Flour.

10. Herbs and Spices. Can be purchased either fresh or dried. They add flavor and can give attractiveness to the product.

a. Herbs. Herbs are non-woody plants - usually annual and mostly grown from seed - of which the flowers, leaves, seeds, stems and roots are used as flavorings in cooking or for medicinal purposes.

b. Spices. Most of which come from the Tropics - are dried parts of aromatic plant to include flowers, seeds, leaves, bark, and roots.

11. Salt. (Sodium Chloride.) Salty sensations come from sodium chloride and other salts such as mono sodium glutamate (MSG) and potassium chloride. This sensation is detected at the front of the tongue. Salt is an essential nutrient that is very desirable in small quantities. Salt also has an incredible capacity to absorb water. When placed on food, it can draw water out and in turn, penetrate into the food where the water once was. Salt, in its various forms is:

a. Rock salt - is mined from deposits on land.

b. Sea salt - is produced by the evaporation of seawater.

c. Flavored salt - combined with other natural flavorings, such as garlic salt, celery salt, and seasoned salt.

12. Water, and its Functions. Water conducts heat to aid the cooking process (simmer, boil, and steam.) It dissolves solids to equally distribute flavors, as in gravy. In the form of ice it is used as a coolant or to chill, such as when making Jell-O.

13. Summary. Being able to supervise or direct personnel preparing food items is a talent all its own. It is important that you know the basics of cooking, and put it into practice. During this lesson, you have learned how to develop a menu, develop a work plan, Mise en Place, presentation of foods, and their nutritional value. You are ready to give your soldiers the guidance they need.

PRACTICE EXERCISE

The following items will test your grasp of the material covered in this lesson. There is only one correct answer for each item. When you complete the exercise, check your answer with the answer key that follows. If you answer any item incorrectly, study again that part of the lesson, which contains the portion, involved.

1. Mise en Place refers to menu items that:

   A. Must be served hot
   B. Are pre-packaged
   C. Can be prepped in advance
   D. Require special forks or spoons to be eaten with

2. What publication outlines menu development considerations:

   A. AR 638-2
   B. FM 10-23-2
   C. TM 412
   D. AR 30-1

3. The following adds flavor and can give attractiveness to the product:

   A. Sugar
   B. Herbs and spices
   C. Proper temperature
   D. Cornstarch

4. What is a “work plan” used for?

   A. Determine time, procedures, and material needed to prepare the items on a menu
   B. Determine the best way to out-source ingredients for items that must be cooked in an oven or microwave
   C. Determine how long it will take to clean up after making each item on the menu
   D. Determine how many kitchen workers will be on the schedule

PRACTICE EXERCISE

ANSWER KEY

Item Number	Correct Response	Reference
1	C	Lesson 2, Para 1b.
2	D	Lesson 2, Para 1
3	B	Lesson 2, Para 10
4	A	Lesson 2, Para 1.a.

LESSON 3

PROBLEMS OF CONSOLIDATED DINING FACILITIES AND FIELD OPERATIONS

Critical Tasks:
101-524-2162; 101-524-3105; 101-524-3106; 101-524-3159; 101-524-3160; 101-524-3161; 101-524-3256; 101-524-3257; 101-524-3258; 101-524-3259; 101-524-3266; 101-524-3267; 101-524-3268; 101-524-3275; 101-524-3278; 101-524-3280; 101-524-3282; 101-524-3283

OVERVIEW

LESSON DESCRIPTION:

This lesson was designed to provide soldiers in the Food Service Specialist Basic Noncommissioned Officer Course (BNCOC) with information on problems of consolidated dining facilities and field operations.

TERMINAL LEARNING OBJECTIVE:

ACTION: Students will solve problems dealing with some of the situations encountered in dining facilities and field operations and complete a practical exercise.

CONDITION: In a self-study environment.

STANDARD: To demonstrate competency of this task, you must achieve a minimum score of 70 percent on the subcourse examination.

REFERENCES The material contained in this lesson was derived from the following publications: AR 30-1 (The Army Food Service Program), AR 30-21 (Army Field Feeding), FM 10-23 (Basic Doctrine for Army Field Feeding and Class I Operations Management), FM 10-23-2 (Tactics, Techniques, and Procedures for Garrison Food Preparation and Class I Operations Management)

INTRODUCTION

Field hygiene and sanitation play a major role in a field operation. It is important that you promote the health and welfare of all personnel. You must practice good hygiene, sanitation, and safety in the field to eliminate the possibility of problems during field operations. Lack of discipline in sanitary field practices may result in the outbreak of diseases. Food in the field must be protected from contamination and kept under the proper temperature control and safe conditions. If it is not, the food may be wasted or cause illness and death. Sick or unclean food

handlers, improperly stored or prepared food, rodents, insects, and untreated water can lead to contamination and foodborne illness.

1. Field Hygiene and Sanitation.

a. Diseases Transmitted by Insects. The effects of diseases transmitted by insects (arthropods) can range from mild illness to death. Infected soldiers can spread a disease to others by handling food and through food preparation.

(1) Mosquitoes. Mosquitoes transmit malaria, yellow fever, dengue fever, and encephalitis.

(2) Lice. Lice transmit typhus fever (epidemic).

(3) Fleas. Fleas transmit typhus fever (murine) and the bubonic plague.

(4) Flies. Flies (particularly houseflies) transmit dysentery and typhoid fever.

(5) Ticks. Ticks transmit spotted fever and lime disease.

(6) Chiggers. Chiggers transmit scrub typhus.

b. Illness Prevention. There are a few general standards, which apply specifically to field kitchens and how to prevent illness.

(1) Water. All sources of water in the field are considered unsterile. Be sure water is always correctly disinfected or sterile. Be sure that everyone in your unit has a bottle of iodine water purification tablets, there are enough chlorination kits, and bulk chlorine is in adequate supply. Check the chlorine residual of water supplies before drinking and at least daily thereafter.

(2) Waste. During field operations, quantities of liquid and solid waste must be properly disposed of to keep the camp and bivouac area from quickly becoming a breeding area for flies, rats, and other vermin. The two basic methods of waste disposal in the field are burning and burying.

(3) Latrines. Ensure latrines are located 100 yards or more from food operations and preferably downhill and on a slope. Latrines should be 30 yards or more down slope from wells, springs, streams, and other water sources. Check daily to see that latrines have been properly cleaned (with insecticide when necessary) provide hand washing facilities at all latrines.

2. Equipment Sanitation Procedures. It is essential that you check the working order and cleanliness of field equipment regularly to ensure the quality of the food, which is prepared.

a. Food Containers. Only insulated food containers with insert should be used. Check containers and their insert seals to make sure they are intact and in good condition.

b. Water Container. Always inspect containers for signs of contamination before use, before filling at distribution points, and before deployment.

c. Water Trailers. Check all manhole covers and make sure the sealing gasket is in place and free of excessive cracks and dry rot.

d. Drain Plug. Make sure the plug is operable. It should come off without excessive effort.

e. Interior. Check the interior for excessive cracks and signs of being used for storing products other than water.

f. Spigots. Inspect spigots for cleanliness and operation. Be sure all handles operate freely.

g. Water Sterilizing Bags. Clean all water sterilizing bags before using them. Ensure that water bags are elevated enough to prevent contamination by wildlife. Remember to check the chlorine level of the water daily.

3. Mess Kit Laundry Line. In the field kitchen, all dishwashing is done with a mess kit laundry. The washing of food utensils, pots, pans, and sometimes mess kits themselves require some type of sterilization and sanitation. Each basic step of how to wash the mess kit and utensils needs to be understood by the persons who will do it. A group of three cans can handle mess kits and eating utensils for 80 people. An extra 32-gallon can, filled with boiling water may be used as a predip if mess kits are used in place of disposable eating ware.

a. Proper Washing Procedure. Proper cleaning is needed to keep pots, pans, utensils, and mess kits sanitized.

(1) In the field, the right way to wash eating utensils and mess kits is to scrape, wash, prerinse, rinse, and air-dry them, in that order.

(2) Scrape to get rid of excess food so the wash water will not get too dirty.

(3) You wash utensils in a hot hand dishwashing compound solution at a temperature of 110 degrees Fahrenheit to 120 degrees Fahrenheit to get them clean.

(4) You prerinse in water at a 120 to 140 degrees Fahrenheit to get rid of the suds.

(5) You rinse in water at 170 degrees Fahrenheit for 30 seconds to sanitize the utensils.

b. With high temperature rinsing and sanitizing –

(1) Scrape food scraps from utensils or mess kits into the garbage can, pit, or trench; prewash the items if you can.

(2) Prerinse the utensils or mess kits in the second can (at 110 to 120 degrees Fahrenheit), and dip them a few times to get the suds off. Shake off the excess water.

(3) Rinse them again in the third can (to 170 degrees Fahrenheit) for at least 30 seconds; this will sanitize the utensils or mess kits.

(4) Shake off excess water, and let the items air dry.

c. Without Boiling Water. When you do not have boiling water

(1) Scrape food scraps into a garbage can, pit, or trench; prewash items if you can.

(2) Wash items in hand dishwashing compound solution.

(3) Rinse the items in clean water.

(4) Disinfect items by swishing them in a chlorine iodine water solution for least one minute.

4. Sanitation Center. The sanitation center provides a means for effectively cleaning and sanitizing feeding and preparation equipment and utensils in a field environment. By avoiding or, when possible, eliminating health hazards in your field situations, you can aid in the accomplishment of a sanitary and successful field mission. The sanitation center is housed in a tent, extendable, modular, personnel tent (TEMPER). It consists of the equipment listed below.

ITEM	OUANTITY
Sink, field with covers	3
Table, drain	2
Table, work	1
Rack, storage	2
Burner Unit	3
Gasoline Lantern	1
Drain Hose Assembly	1
Fire Extinguisher	1
Thermometers (for sink)	3
Bracket, thermometer	3
Trash Barrels, plastic	2
Rack, sink, immersion	2
Adapter, sink	2

Table 3-1. Sanitation center inventory.

5. Field Kitchen Site Selection. The unit commander or Food Service Officer (FSO) specifies the general location of the field kitchen site. However, you must consider the characteristics of a good field site. The site you select for your field operation must be easily accessible, of sufficient size, and have adequate natural camouflage.

a. The size of your site should be large enough to handle all estimated field supplies and equipment. When in a combat zone, the site must be large enough to store supplies over a large amount of space to lessen effects of destruction.

b. Theater Storage. In a theater, you can estimate the total area needed for subsistence supplies by multiplying the cubic feet of food space needed; per-person-per-day by the number of troops supported. A Rations require refrigerated space. B Rations do not require refrigerated space; but the B –Ration supplements do. UGRs (20 meals for 400 people) fit in one 20 foot container.

c. Concealment and Cover. It is difficult to camouflage all subsistence. If there are trees at your site, place the palletized rations under them. Camouflage trucks and materials handling equipment with authorized netting. When possible, use natural terrain to protect the kitchen's supply point from enemy fire.

d. Defense. When possible, use three-strand concertina wire to define the site's perimeter. Include defensive positions as part of the unit's overall defensive plan. Enforce light and noise discipline, as the situation requires.

6. Field Area Layout. The field kitchen area should be camouflaged to hinder detection by enemy aircraft, ground forces, or infrared sensors. Each piece of equipment must be located to ease meal preparation. Ensure your specific layout meets the following criteria.

a. Cover. Select good, natural cover for your layout to shield troops from enemy observation and to protect them from harsh weather conditions.

b. Roads. The site should have good access roads that let supply trucks move freely.

c. Ground. Select high and dry ground near a protected slope to ensure good drainage and protection from the wind.

d. Space. Be sure there is enough space to avoid crowding the troops. There should be enough space around the field kitchen to allow staggering the serving lines. There also must be space to facilitate spreading equipment out for work efficiency.

e. Water. The site must be near a source of potable water to use in preparation of food and beverages.

f. Soil. Select a site with sandy loam or gravelly soil that lets excess water seep away and that facilitates soakage pits and trenches.

g. Gasoline Cans. Gasoline should be at least 50 feet from the kitchen and other areas in which there are burner units. Mark off the area so personnel are aware of the presence of gasoline.

h. Sanitation Center. Pick a site for the corrugated cans that is level, free of obstacles, and as sheltered as possible. The site should be at least 50 feet from the kitchen (and, if possible, downslide). Use rocks, planks, or dunnage to stabilize the cans if the ground is soft or wet.

i. Kitchen Company Level Field Feeding (KCLFF). Select a level site that is clear of obstacles for about 600 square feet (56 square meters) for the setup of the KCLFF equipment. When possible, choose a site that protects the KCLFF from wind and rain. Never use flammable material as a base for the KCLFF.

7. Camouflage and Concealment. The field kitchen area must be camouflaged in order to prevent detection by enemy aircraft, ground forces, or infrared sensors. When possible, select a field kitchen site that can make optimum use of the natural terrain as concealment.

a. Ensure that your soldiers do not congregate in large groups while they eat.

b. Ensure the area and equipment cannot be seen from the air. Erect camouflaging materials if there is not enough natural concealment.

c. If you are set up near front lines, ensure that enemy ground observation cannot see the dining area. A site that is naturally concealed is preferred.

d. Ensure that any litter from packaged rations, disposable utensils, dishes, and tin cans are buried, and that the refuse site is then camouflaged.

e. Ensure that any equipment that reflects light is camouflaged and kept out of the sun.

f. Ensure your soldiers use light discipline when needed. If a total blackout is necessary, instruct the soldiers to stop cooking, The heat from cooking can attract infrared sensors.

g. Plan field feeding areas needed for a training exercise ahead of time. Make sure your subordinates are trained to carry out the necessary steps to establish a good site layout.

8. The M2 Burner Unit. It is important that you ensure that all personnel are trained in operating all food service field equipment and that they follow local SOP.

a. One M2 burner is authorized for each M59 field range.

b. The M2 burner unit consumes approximately two quarts (1.9 liters) of fuel per hour.

c. Check the unit for signs of damage.

d. Check the burner slots for signs of clogging or damage.

e. Check the fuel tank for obvious signs of leakage or damage to the fuel filler cap.

f. Check the preheater and generator valves to ensure they are closed.

g. Pressure test the burner unit in an area 50 feet away from either the gasoline or cooking area.

h. Do not use vehicle air pump to pressurize the M2 burner.

9. Generator. Avoid inhaling dust or fumes from the generator, and do not place the generator to your mouth. Dust and fumes can cause lead poisoning. Always follow local Standing Operating Procedures (SOP) to clear the generator:

a. Loosen the nut at the rear of the generator.

b. Slide the generator forward slightly and lift it from the unit.

c. Drain the fuel from the generator.

d. Clean the exterior of the generator with a wire brush, then wipe it clean with a cloth dampened with dry cleaning solvent, P-D-680. The flash point of the solvent is 100 degrees Fahrenheit to 138 degrees Fahrenheit. This solvent is very dangerous to both personnel and property. Avoid prolonged skin contact.

10. Field Kitchen Site Layout. An ideal site for operation is a level area with a clear operating space of about 30 square feet and a clear overhead of no less than 11 feet. The site should have as many advantages as the terrain and conditions permit.

a. For the M59 field range, select a level, firm, well-drained site free of flammable material (if ground is soft or wet, use gravel or other fireproof material). The site must be clear of obstacles that might hinder normal operations. If the setup is indoors, the site must allow ample ventilation. Two M59 field ranges are authorized per 104 soldiers.

b. For the Mobile Kitchen Trailer (MKT), select a level site with a clear operating space of about 30 square feet and an overhead clearance of at least 11 feet. Allow at least 4 feet between the kitchen and any obstacles so personnel have room to lower the ramps.

11. Summary. As a supervisor, it is important you know about field sanitation and equipment management. You must display proficiency in site selection and lay out, operation of equipment, and the hazards that can occur in the field. Knowing authorization factors, fuel consumption and operating and maintenance procedures will ensure a successful operation of your field kitchen.

PRACTICE EXERCISE 1

The following items will test your grasp of the material covered in this lesson. There is only one correct answer for each item. When you complete the exercise, check your answer with the answer key that follows. If you answer any item incorrectly, study again that part of the lesson, which contains the portion, involved.

1. Insects can transmit diseases to soldiers. What is one disease that mosquitoes can transmit?

   A. Typhus Fever
   B. Bubonic Plague
   C. Yellow Fever
   D. Shingles

2. What is one disease that flies can transmit?

   A. Dysentery
   B. Spotted Fever
   C. ScrubTyphus
   D. Yellow Fever

3. Water must be sterilized in the field. When treated water is unavailable, what must soldiers use to disinfect water?

   A. Ammonia
   B. Chlorine
   C. Hydrogen Peroxide
   D. Alcohol

4. To keep a field kitchen and bivouac area from breeding pests, soldiers must promptly dispose of large amounts of:

   A. Water
   B. Fresh produce
   C. Waste
   D. Hand dishwashing compound

PRACTICE EXERCISE 1

ANSWER KEY

Item Number	Correct Response	Reference
1	C	Lesson 3, Para 2.a.(1)
2	A	Lesson 3, Para 2.a.(3)
3	B	Lesson 3, Para 2.b.(1)
4	C	Lesson 3, Para 2b.(2)

LESSON 4

SUPERVISING GARRISON AND FIELD OPERATIONS

Critical Tasks:
101-524-3106; 101-524-3107; 101-524-3159; 101-524-3160; 101-524-3161; 101-524-3254; 101-524-3257; 101-524-3258; 101-524-3259; 101-524-3266; 101-524-3267; 101-524-3268; 101-524-3275; 101-524-3278; 101-524-3280; 101-524-3282; 101-524-3282

OVERVIEW

LESSON DESCRIPTION:

This lesson was designed to provide soldiers in the Food Service Specialist Basic Noncommissioned Officer Course (BNCOC) with guidance for performing the duties of a Senior First Cook, Food Operations Sergeant, and OJT Supervisor.

TERMINAL LEARNING OBJECTIVE

ACTION: Students will perform duties as Senior First Cook, Food Operations Sergeant, and OJT Supervisor for a shift of AIT soldiers.

CONDITION: In a self-study environment.

STANDARD: To demonstrate competency of this task, you must achieve a minimum score of 70 percent on the subcourse examination.

REFERENCES The material contained in this lesson was derived from the following publications: AR 30-21 (The Army Field Feeding System), FM 10-23 (Basic Doctrine for Army Field Feeding and Class I Operations Management), FM 10-23-2 (Tactics, Techniques, and Procedures for Garrison Food Preparation and Class I Operations Management).

1. Responsibilities of a Senior First Cook/Food Operations Sergeant/OJT Supervisor. Responsibilities of a senior first cook or food operations sergeant may include the following:

a. Determine which tasks are to be done. Which are critical and need to be prioritized?

b. Determine the time required to do each task. Tasks will normally require different times to be performed.

c. Decide who will perform a task. Each soldier performs at his/her own pace. Each has his/her own level of skill. You must know your soldiers. You must assign each soldier a task, rotate him or her, and inform them of their duties. You will need to determine the feeding requirement based on projected headcount and ensure you have adequate personnel available. There may be times when you will have to coordinate with other units for assistance when feeding their personnel.

d. Ensure documentation in the Army Food Management Information System (AFMIS) is completed IAW AR 30-1 and the End User Manual. Provide a work schedule for your personnel. The goal for scheduling personnel is to try to work them no more than 40 hours per week, giving each soldier an equal amount of work and experience.

e. Monitor your personnel to ensure they perform to standard.

f. Coordinate supplies and (when in the field), fuel and PMCS of equipment.

2. Daily Meetings and OJT. Conduct daily meetings with your personnel and set up an effective on-the-job training program that will help you in accomplishing your duties.

a. Daily meetings do not necessarily need to be long. You should communicate what is coming up in the future, what is needed, and what is expected. Daily meetings will allow you to resolve problems constructively.

b. On-the-job training program will assist you in identifying who needs training. It sets newly assigned personnel on the right track, giving them confidence in completing the assigned tasks.

3. Factors in Foodborne Illness. The eight most frequently cited factors involved in outbreaks of foodborne illness are

a. Failing to refrigerate foods properly.

b. Failing to heat or cook foods thoroughly.

c. Preparing foods too far in advance of serving.

d. Using raw or contaminated ingredients in foods that receive no further cooking.

e. Allowing foods to remain at bacteria-incubating temperatures.

f. Allowing infected food service workers or personnel with poor personal hygiene to work in the facility.

g. Failing to reheat cooked foods to temperatures that kill bacteria.

h. Allowing cross-contamination of cooked foods with raw items or raw hazardous food with raw non-hazardous food (raw chicken or lettuce) either by workers who mishandle foods or through improperly cleaned equipment.

4. Food Related Hazards. There are three main types of hazards associated with storing and handling of foods. They are biological, chemical, and physical. The biological hazard is the most serious in the dining facility.

a. Biological. Bacteria will multiply quickly in the temperature "danger zone" of 45 degrees Fahrenheit to 140 degrees Fahrenheit. Food susceptible to bacterial contamination should be kept outside this range as much as possible. Cooking food to proper internal temperature can kill harmful bacteria. See TB MED 530 for further guidance.

b. Chemical. These hazards result from the improper use of additives, poisonous metals, cleaning chemicals, preservatives, and pesticides. Chemical and metal products should be used only for their intended purpose. They should be stored properly and away from food storage areas. Use proper containers for storing and preparation of food.

c. Physical. Faulty equipment can contaminate foods or be a safety hazard. Also, foods may be physically contaminated (dirt, glass fragments, and wood splinters) when received in the dining facility. Food service personnel must constantly guard against physical contamination. Some foodborne illnesses and their causes are shown in the table below.

ILLNESS	CAUSE
Staphylococcus	Improper refrigeration. Food handlers with cuts, wounds, coughs, or colds.
Botulism	Damaged cans or jars. Improper canning methods.
Salmonellosis	Poorly cooked poultry and poultry products, meats, eggs and egg products, fish, and dairy products. Cross-contamination from raw to cooked foods.
Streptococcus	Poor personal sanitation. Food handlers with coughs or colds. Food stored at the wrong temperature.
Bacillary Dysentery (Shigellosis)	Food contaminated by people, water flies, roaches, and rats.
Trichinosis	Pork or pork products not cooked to an internal temperature of 150 degrees Fahrenheit.
Clostriduim Perfringens (Food poisoning)	Inadequately cooled and reheated meats.

Table 4-1.Food borne illnesses and their causes.

5. General Principles for Preparing and Storing Foods. The biggest responsibility you will have is monitoring your personnel to ensure that tasks are accomplished to standard. When monitoring personnel storing, preparing, and serving food, you must ensure they follow safety and sanitation procedures. Monitor holding and serving temperatures. Ensure that all cooks follow proper procedures on the serving line. Listed below are a few general principles to follow. (Sample Checklist for monitoring your soldiers' progress; can be found in Appendix A).

a. Ensure proper food storage to minimize contamination and improve shelf life. The first step in keeping food supplies in optimum condition is proper food storage. Proper food storage minimizes deterioration and the growth of foodborne disease organisms.

b. Eliminate unnecessary handling of food items.

c. Select old storage stocks first. The first stocks in should be the first stocks out.

d. Provide the required temperatures for all stored food items.

e. Provide special handling for ripening fruits and vegetables.

f. Maintain insect and rodent control. The most effective control measure against rats and mice is to prevent them from entering into the storage area.

g. Ensure that good air circulation and ventilation are maintained.

h. Store food on shelving in storerooms or refrigerators to protect it from water and dampness.

i. In a field environment use dunnage in all storage areas.

j. Ensure storage areas are kept clean and sanitary at all times.

k. Remove spoiled, damaged, or contaminated food promptly.

l. Store cleaning supplies and other toxic items separate from food.

m. Store raw or prepared food that has been removed from its container or package. Foods must be stored in a clean, covered container.

n. Store so that it is not under exposed sewer or waterlines.

(1) Whenever possible, personnel should store nonacidic bulk food (cooking oil, syrup, salt, sugar, or flour) in its original container. If it is transferred, personnel must label the new container. Do not use galvanized metal cans for storing foods or beverages.

(2) You can properly store food by carefully supervising your food service personnel and attention to detail. It is your job to keep food safe for soldiers. Storage requirements to prevent deterioration of perishable food include suitable temperature, humidity, air circulation, and sanitation conditions.

6. Food Preparation. Food service personnel preparing foods and combining ingredients often make mistakes that cause contamination. If temperatures are not controlled while food is prepared, held, and served, food-borne illness may result. Things to watch for are described below.

a. Thawing. Thaw foods under refrigeration at temperatures of 45 degrees Fahrenheit or below, under potable water, or as part of a conventional process (See TB MED 530 for procedures).

b. Correct Cooking Temperature. Although 140 degrees Fahrenheit is quite adequate to prevent further bacterial growth, different products must reach certain internal temperatures to ensure that bacteria have been killed. Check thermometers for accuracy, and use them to ensure that proper temperatures have been reached.

c. Breading. Discard all ingredients after breading food. They have become contaminated. They should not be used again.

7. Hygiene. Unless cleared by the Installation Medical Authority (IMA), no person may work in any area of a food service facility while infected with, or carrying, a contagious disease. When monitoring safety and sanitation practices, ensure that personnel maintain a high degree of

personal cleanliness. Inspect daily at the start of the work period. Use a personnel hygiene checklist to confirm that your personnel are qualified to work with food. Refer personnel showing signs of illness, including skin infections and diarrhea, to the IMA for evaluation. Listed below are requirements for personnel cleanliness.

a. Uniforms. All food service personnel must wear a clean uniform daily. Except during field operations, all employees must wear light-colored uniforms that show soil or dirt.

b. Jewelry. Except for plain wedding bands, food service personnel cannot wear any jewelry while preparing or handling food.

c. Hair Restraints. All personnel working in food service facilities must use clean restraints that effectively prevent hair from entering food or falling onto food- contact surfaces. Personnel with hair (including facial) that cannot be adequately restrained should be prohibited from food service operations.

d. Custodial duties. Personnel who handle or serve food may not clean latrines, garbage cans, sewers, drains or grease traps or performs similar custodial duties during food preparation. This does not rule out cooks' clean-as-you-go procedures or prohibit personnel from performing custodial duties at the end of their shift.

8. Sanitation. Sanitation in the Army dining facility starts with the food handler. Sanitation is a very important part of protecting food from contamination and subsequent foodborne disease outbreaks. Set the following standards for dining facility personnel concerning food consumption, tobacco use, and the washing of hands.

a. Consuming Food. Except for testing recipes or water consumption, employees are to consume food only in designated dining areas. Test recipes with clean, sanitized utensils. Discard portions withdrawn for testing as food waste, and sanitize used utensils before reuse. Designate an employee dining area where contamination of food, equipment, utensils, and other items needing protection does not occur.

b. Use of Tobacco. Personnel cannot use tobacco in any form while involved in food preparation or service, while using equipment, during utensil washing, or while in food preparation areas. Designate an area where personnel are permitted to use tobacco. Personnel cannot resume work after using tobacco without first washing their hands. Post signs to this effect.

c. Washing Hands, Arms, and Fingernails. Personnel must keep their fingernails washed and trimmed. Post signs instructing personnel to wash thoroughly. Personnel must wash their hands and exposed portions of their arms thoroughly in each of the following situations:

(1) At the beginning of duty.

(2) After using the toilet facilities.

(3) After using tobacco.

(4) Between handling soiled and clean utensils and equipment.

(5) Between handling raw and cooked foods.

(6) After performing custodial duties including handling garbage or trash.

(7) As often as necessary to maintain a high level of personal cleanliness.

9. Training. When training food service personnel, be sure they are instructed in foodborne illness prevention and in the first aid for choking. Supervisory food service personnel usually conduct this training. Maintain records of foodborne illness prevention training. Educational programs, signs, and other instructional or directive material should be in the native language of food service personnel.

a. For nonsupervisory personnel, provide initial and ongoing food service sanitation training. Direct the scope of the training to the individual's role in preventing foodborne illness.

b. As a food service supervisor, you must complete an approved formal training program in food sanitation. This training is taught by the IMA using installation veterinary and preventive medicine personnel and hospital dieticians.

c. Course content is to stress the principles involved in preventing foodborne illness, the role of supervisors in training other food service employees, and other areas of local concern as defined by the IMA. Course content must meet the minimum requirements of the Department of Health, Education, and Welfare (DHEW) Food and Drug Administration (FDA) Publication 76-1009.

d. Use as a resource the National Institute for the Foodservice Industry (NIFI) course in Applied Foodservice Sanitation for developing a supervisory training program. A certificate by NIFI of all supervisory personnel is strongly recommended. NIFI certified personnel should assist in presenting subsequent training programs. The IMA awards food handler training certificates to each food service supervisor upon satisfactory completion of required training.

10. OJT Concept. The Food Service Sergeant is responsible for planning, directing, conducting, and supervising the training program. In OJT, workers are trained during working hours. OJT is used most often to teach newly assigned workers how to do a specific job. It can also be used to train an experienced worker in a new technique or position. OJT is necessary for soldiers starting a new job, no matter what their previous jobs have been.

a. OJT has many advantages. Trainees work while they are learning. They give immediate feedback of what they learn and get immediate feedback of the results. The soldiers are being taught by the same people with whom they will be working. Therefore, they learn a specific job according to set standards.

b. There are some disadvantages of OJT. Often there is either too much or too little supervision. If the trainer is not qualified, the student may be taught bad habits and work methods. If there are no uniform standards of instruction, trainees may feel frustrated because they have to learn too much too quickly. At times, work may be unfairly compared with that of the more experienced workers, or the trainer may not have the ability, time, or patience to provide proper training.

c. Before OJT can begin, each part of the job must be broken down so that it can be presented logically. When setting up an OJT program, be aware that some workers will need more training than others. If they are singled out, it may lower their self-confidence. The worker who works quickly may have a smug attitude. These attitudes can affect the morale of the entire staff. The best way to avoid either of these problems is to call the training program a refresher course. Then, the trainer can spend more time helping those who need it.

11. OJT Procedures. During your first interview with a soldier, find out what he knows. Also, check his personnel records, watch him/her as they work, and judge the products he/she prepares to determine what they know. Compare what they know to what you expect them to do. Then determine what needs to be taught. Consider how long the soldier can be expected to stay in his/her present position, main duty, how much training he/she needs, and how much education and experience are required for the level of instruction. When planning OJT, plan to follow up on its effectiveness. If you are the trainer, you should do the follow up. Stress the important points that were discussed in the OJT session. Remember, not all problems are the fault of the program.

a. Prepare the student. Put the soldier at ease. Demonstrate the task. If the task is to operate equipment, show the soldier where to stand and where to put the utensils and ingredients so that they can be reached easily. Discuss operational features and safety concerns.

b. Present the operation. Demonstrate the job step-by-step. Be patient and be thorough so that you do not miss any details. Go slowly enough for the soldier to follow the demonstration. Ask questions to make sure the soldier understands the operation. Review frequently to make sure the pace is not too fast.

c. Have the student try the operation. Ask the soldier to demonstrate the operation and to explain each step. Ask questions about what, how, and why a step is done. These questions reinforce the learning process. Correct errors with tact.

d. Follow up on the training. Let the soldier function independently. Tell the soldier to come to you for help or for materials. Give further instruction if necessary.

e. Training time is one of the most critical factors in the development of the training schedule. You must consider the extent and depth of training needed. Allow time for the soldier to gain a workable knowledge of the procedures, methods, and techniques of the subject to be trained. The soldier must learn to identify common errors and shortcomings and how to avoid or correct them. Schedule the training so that it will not interfere with your workload. If it takes 48 hours to train in a subject, consider scheduling training during a three-week period, four hours a day, for 12 days.

12. Summary. The object of all training should be to have a staff that works as a team to meet the mission of the activity. If the program is to be successful, the soldier must want to learn. Good leadership, sound instructional methods, and effective communication help to motivate the soldier. You must constantly supervise the training to make sure it does not become so routine that the soldier loses interest.

PRACTICE EXERCISE

The following items will test your grasp of the material covered in this lesson. There is only one correct answer for each item. When you complete the exercise, check your answers with the answer key that follows. If you answer any item incorrectly, study that part of the lesson, which contains the portion involved.

1. What will conducting daily meetings and setting up an effective on-the-job-training program help you with?

   A. Accomplish your duties and allow you to resolve problems constructively
   B. Identify who needs training
   C. Sets newly assigned personnel on the right track
   D. All of the above

2. What are the three main types of hazards associated with storing and handling foods?

   A. Biological, chemical, and physical
   B. Contaminated food, raw foods, raw vegetables
   C. Dirt, glass fragments, wood splinters
   D. None of the above

3. When training food service personnel, be sure they are instructed in which of the following:

   A. Food service sanitation training
   B. Foodborne illness prevention and first aid for choking
   C. Course content
   D. Areas of local concern

4. In OJT, the food service sergeant is responsible for :

   A. Having personnel NIFI certified
   B. Testing recipes
   C. Planning, directing, conducting, and supervising
   D. All of the above

PRACTICE EXERCISE

ANSWER KEY

Item Number	Correct Response	Reference
1	D	Lesson 4, Para 2.a.b.
2	A	Lesson 4, Para 4.a.b.c.
3	B	Lesson 4, Para 9
4	C	Lesson 4, Para 10

Appendix A

GARRISON CHECKLIST

MAX POINTS	TASK #	TITLE	POINTS RECEIVED
	101-524-2165	Direct personnel preparing and serving meals in a dining facility	
01		Assign duties to soldiers.	
01		Rotate tasks so that each cook has an opportunity to learn a variety of skills.	
01		Review the production schedule with soldiers.	
01		Review the recipe cards of SOPs with soldiers.	
01		Review special instructions.	
05		Conduct a safety briefing.	
05		Train soldiers to operate equipment properly.	
05		Monitor soldiers operating and maintaining dining facility equipment.	
05		Monitor the performance of soldiers during meal preparation.	
05		Ensure preparation procedures on the recipe cards are followed.	
05		Provide on the spot correction.	
05		Direct soldiers to set up serving lines.	
05		Ensure that food items are garnished before placing them on the serving line.	
05		Ensure correct serving utensil placed beside each item on the serving line.	
05		Check the items on serving line against the items on production schedule.	

MAX POINTS	TASK #	TITLE	POINTS RECEIVED
	101-524-3282	Conduct quality assurance evaluation of food preparation and finished products	
05		Check food for structure, volume holes or tunnels, heaviness, and texture.	
05		Check food for overcooking (dry texture or shrunk) and undercooking.	
	101-524-3107	Supervise the preparing, serving and storage of food items to ensure optimal utilization value.	
05		Brief the servers on specific duties.	
05		Make sure servers practice portion control.	
05		Designate soldiers to replenish food items.	
05		Ensure hot foods are served and held at140 degrees Fahrenheit or more, and cold foods are served at 45 degrees Fahrenheit or less. Reheat leftover foods to 165 degrees Fahrenheit.	
	FM 22-101	Professional and performance evaluation.	
05		Demonstrate initiative: Adapts to changes: Performs under pressure: Displays sound judgement: Communicates effectively: Demonstrates technical skills.	
	FM 22-101	Professional standards.	
05		Self discipline (attitude) and Military appearance.	

FINAL SCORE_____
CIRCLE PASS OR FAIL

LESSON 5

RESPONSIBILITIES OF SENIOR FIRST COOK/FOOD OPERATIONS SERGEANT

Critical Tasks: 101-524-3107; 101-524-3254; 101-524-3278

OVERVIEW

LESSON DESCRIPTION:

This lesson was designed to provide soldiers in the Food Service Specialist Basic Noncommissioned Officer Course (BNCOC) with information on the responsibilities of a Senior First Cook/Food Operations Sergeant and the principles, problems, and corrective measures associated with supervising and training subordinates.

TERMINAL LEARNING OBJECTIVE:

ACTION: Students will identify the responsibilities of a Senior First Cook/Food Operations Sergeant and the principles, problems, and corrective measures associated with supervising and training subordinates.

CONDITION: In a self-study environment.

STANDARD: To demonstrate competency of this task, you must achieve a minimum score of 70 percent on the subcourse examination..

REFERENCES The material contained in this lesson was derived from the following publications: FM 10-23 (Basic Doctrine for Army Field Feeding and Class I Operations Management) and FM 10-23-2 (Tactics, Techniques, and Procedures for Garrison Food Preparation and Class I Operations Management)

INTRODUCTION

How important are your daily tasks? What you do and how you accomplish your tasks are critical to the successful operation of the dining facility. Your diners depend on your ability to manage the personnel on your shift. Your responsibilities may include the following:

1. General Responsibilities of a Supervisor.

a. Determining which tasks need to be done. You will need to determine which tasks are critical and are a priority.

b. Determining the time needed. Not all tasks will require the same time to complete. However, it is possible to accomplish many close to an estimated time. For example, preparing food items will be done and ready 15 minutes before serving.

c. Deciding who will perform each task. Each soldier performs at his or her own pace and skill level. You must know your soldiers. You must assign each soldier tasks, rotate them, and keep them informed of their duties. You will need to determine the feeding requirement based on projected headcount and ensure you have adequate personnel available. There may be times when you will have to coordinate with other units for assistance when feeding their personnel.

d. Ensuring paperwork is completed IAW AR 30-1 (The Army Food Service Program) and providing a work schedule for personnel. The goal for scheduling personnel is to try to work them no more than 40 hours per week, giving each soldier an equal amount of work and experience.

e. Monitoring your personnel to ensure they perform to standard.

2. Principles Associated with Supervision. Conducting daily meetings and establishing an effective on-the-job training program including sanitation and Hazard Analysis Critical Control Point (HACCP) will help you in accomplishing your tasks.

a. Your daily meetings do not necessarily need to be long. You must be able to communicate what is coming up in the future, what is needed, and what is expected. You must be able to solve problems constructively. Daily meetings are an effective tool when used.

b. Your on-the-job training program will assist you in identifying who needs training. It sets newly assigned personnel on the right track, giving them confidence in completing assigned tasks.

3. Supervision of Personnel and Associated Problems. The biggest responsibility you will have is monitoring your personnel to ensure that tasks are accomplished to standard.

a. When monitoring personnel storing, preparing, and serving food, you must ensure that they:

(1) Store items at the proper temperature.

(2) Store items in dry, ventilated areas.

(3) Practice the first in, first out (FIFO) method.

(4) Maintain nutrient retention.

(5) Maintain calorie control.

(6) Use progressive cooking

(7) Set up the serving line properly.

(8) Use edible garnish only which is placed on the food and not on the line.

b. When you monitor safety and sanitation practices, ensure that:

(1) Personnel maintain a high degree of personal cleanliness.

(2) Personnel wear a clean uniform daily.

(3) Personnel are trained in the prevention of foodborne illness.

(4) Floors are clean and dry.

(5) Personnel follow instructions on operating equipment and clean up spilled food or liquids immediately.

(6) Personnel never play around in the kitchen.

(7) Personnel clean as they go.

c. If your personnel fail to follow any of the guidelines, problems will result. Spoilage, injury, and health should be your daily concern when supervising personnel at work.

4. Responsibilities of a Senior First Cook. As a senior first cook, you must ensure that your cooks are well trained, knowledgeable, and able to perform the duties assigned. All tasks must be learned to effectively function as the senior first cook/food operations sergeant. You must be able to do the following:

a. Supervise preparation, serving, and storage of food items to ensure optimal nutritional value. You are responsible for all subsistence items from the time they are received until they are consumed.

b. Conduct quality assurance evaluation of food preparation and finished products. You must be able to determine if recipes were followed and if finished products are standard and recommend corrective action for nonstandard products. Quality assurance is a never-ending process. By being proficient in every task for your grade and by training and supervising your cooks, you will ensure that only the highest quality products are served.

c. Implement on-the-job (OJT) training. Your commander is responsible for training and your Senior Food Operations Sergeant must set up, direct, and supervise an effective OJT program. As a senior first cook, you will be actively involved in training. OJT is used most often to teach newly assigned cooks how to do a specific job. OJT can also be used to train an experienced worker in a new technique, position, or task. FM 10-23 has an excellent outline for an OJT program.

d. Supervise the receipt and storage of subsistence items. You are responsible for all food products. Subsistence items must be inspected upon receipt and stored properly in order to retain nutrients and prevent waste.

5. Standardization. This information is taught to AIT students in the basic course. As a senior first cook, you must have a basic knowledge of recipe cards and why and how they are used. Refer to FM 10-23-2. This information will also help you to establish an OJT program.

a. Standardized recipes, cooking methods, and terms are necessary to ensure that quality, nutritious, and attractive foods are produced for soldiers regardless of where they are stationed. Army recipes and proper procedures for measuring and weighing must be used.

b. One of your main duties as senior first cook will be to produce standardized successful products. Armed Forces Recipe Service and Index of Recipes (TM 10-412) is the result of years of careful planning and testing of recipes. TM 10-412 contains all of the information you need to produce a standard product that is both nutritious and of the highest quality. Recipe cards contain the following information:

(1) Yield number of portions produced.

(2) Portion size to be served.

(3) Pan size (for recipes that require cooking).

(4) Proper temperature to be used in cooking.

(5) Ingredients required.

(6) Exact weights or measurements required.

(7) Method, broken down to sequenced steps, telling how, when, and what to do.

(8) Variations (ways to change product in appearance or taste).

(9) Information on acceptable substitutions of ingredients listed.

c. TM 10-412 also has general information cards which contain guidelines covering everything from the proper preparation of fresh vegetables to the capacities of pans used in the dining facility. Such detailed information standardizes preparation and cooking, so the soldiers

stationed in Germany receive the same foods as the soldiers in the United States or Korea. Standardization means you will prepare and cook a meal in the training center exactly as you will at your next duty assignment. Standardization of cooking and recipes also provides the soldier who lacks training or experience the means to produce a high quality product simply by following the recipe card. If you do not have access to TM 10-412: but have Internet access, the recipes can be found at: http://www.nll.navsup.navy.mil/recipe/.

d. The recipes in TM 10-412 are proven: They Work! You will produce a standard product if you follow the recipes. In order to follow a recipe card, you must have certain basic skills and knowledge. These include knowing cooking terms and equivalents, knowing how to weigh and measure correctly, know equipment and utensils and their proper usage, and being able to identify and use the proper knife for a job. These are important and necessary to producing a standard product. Once you have mastered these skills and acquired the knowledge, you are ready to begin preparing and cooking products.

e. To produce a standard product you must follow the recipe card exactly. You must execute each step properly during the preparation and cooking process. Read the recipe first making sure you understand all terms and procedures. Collect all reference cards and materials pertinent to the recipes, and assemble all ingredients and utensils. Then, correctly perform the steps to produce a standard product that is attractive, nutritious, and of the highest quality.

6. Specific Responsibilities of the Food Operations Sergeant. The food operations sergeant is in direct charge of and manages the overall operation of the dining facility. He or she must be knowledgeable in all areas of dining facility operations and personnel management. Training in food service is a continuous process. You must be aware of changes in policy, doctrine, new publications, and equipment to better train first-line supervisor to fulfill their training responsibilities to junior personnel. Ensure your personnel have access to soldier training publications (STPs), field manuals (FMs) and know what formal training is available and how to get it. You must be involved in the training of your subordinates. Listed below are areas of responsibility and daily duties.

a. Subsistence Requests. Estimate future meals and prepare requests for food items.

b. Files. Maintain files according to AR 25-400-2 (The Modern Army Record keeping System).

c. Cash Collections. Account for all cash collections per AR 30-1. Turn in cash to the Food Service Officer (FSO) or designated turn-in point.

d. Dining Facility Account. Maintain DA Form 3980-R (Dining Facility Account Card).

e. Headcount Instructions. Maintain current headcount instructions per AR 30-1, Appendix E. Brief the headcounters prior to performing duties. Ensure headcounters perform as instructed.

f. Operations. Work closely with food service personnel to improve standards of performance. Stay current on regulations by studying new publications.

g. Personnel. Determine how many personnel are needed to prepare, cook, present, and serve the food. Schedule shifts and assign major duty areas. Make recommendations concerning the promotion, assignment, and training of personnel. Assure assigned personnel are inspected by the supervisor for personal hygiene. Coordinate with the contracting officer's representative (COR) for matters concerning contracted dining facility attendants.

h. Security. Make sure the dining facility, food, equipment and cash are secure.

i. Preparation, Cooking and Serving. Develop Standing Operating Procedures (SOPs) for kitchen, serving and dining facility operations. Prepare the production schedule and forms used in the operation of the dining facility. Inspect the serving line to ensure items are available and pleasantly merchandised. Conduct studies of diner preference and acceptance of different types of food.

j. Sanitation. Supervise employee personal hygiene practices. Ensure sanitary storage, preparation, transport, and serving of food. Maintain clean and sanitary food service facilities, equipment, and utensils.

k. Safety. Supervise personnel on safety practices and operations. Assure personnel observe appropriate safety and occupational health rules.

l. Training. Develop, implement, and supervise the OJT of assigned 92G personnel. Supervise the administration of unit food service personnel participating in the cook's apprenticeship program. Ensure food service personnel under your control are trained in the principles of food service sanitation as outlined in TB MED 530 (Occupational and Environmental Health Food Service Sanitation). Support the unit training program by ensuring food service personnel are trained in common soldier skills and other required instruction.

7. Planning Phase. The food operations sergeant is charged with providing the best possible food service support to the soldiers on the battlefield. You must make the most efficient use of assigned personnel, equipment, facilities, and supplies. Coordinate closely with the commander, food service officer, first sergeant, and the food advisor. They must be involved as early as possible in the operations planning phase. Continually improve the food service teams' proficiency by ensuring all assigned personnel are properly trained to work as part of the team.

a. Prepare the trainee.

(1) Put the trainee at ease.

(2) Demonstrate the task. Show the trainee where to put ingredients, utensils and equipment so they can be easily reached.

b. Present the operation.

(1) Demonstrate the job step-by-step.

(2) Paying attention to detail and have patience so details are not missed.

(3) Go slowly enough for the trainee to follow the demonstration.

(4) Ask questions to make sure that the trainee understands the operation.

(5) Review frequently to make sure that the pace is not too fast.

c. Have the trainee try the operation.

(1) Ask the trainee to demonstrate the operation and explain each step. Ask questions about what, how, and why a step is done. These questions reinforce the learning process.

(2) Correct errors with tact.

d. Follow up on the training.

(1) Let the trainee function independently.

(2) Tell the trainee to come to the trainer for help or materials.

(3) Give further instruction if necessary.

8. Summary.

Now that you are aware of your responsibilities as a Senior First Cook/ Food Operations Sergeant, you can perform your job in an efficient and effective manner. Encourage your trainees to discuss the situations they have encountered and how they solved them.

PRACTICE EXERCISE

The following items will test your grasp of the material covered in this insurance. There is only one correct answer for each item. When you complete the exercise, check your answer with the answer key that follow. If you answer any item incorrectly, study again that part of the lesson, which contains that portion involved.

1. When monitoring personnel storing, preparing, and serving food, you must ensure that they:

   A. Store items at the proper temperature
   B. Store items in dry, ventilated areas
   C. Practice first in, first out (FIFO) method
   D. All of the above

2. What must a senior first cook ensure that the cooks are?

   A. Well trained, knowledgeable, and able to perform the duties assigned
   B. Have access to the Internet
   C. Attending daily meetings
   D. Deciding who will perform the task

3. As a senior first cook, applying standardization method to cooks, what must you have a basic knowledge of?

   A. Portions produced
   B. Recipe cards
   C. Portion size to be served
   D. None of the above

4. As a food operations sergeant in direct charge of the dining facility, you must be involved in the training of your subordinates. What are some of the areas of responsibility?

   A. Subsistence request, files, cash collection
   B. Dining facility account, headcount instruction
   C. Operations, personnel, security
   D. All of the above

PRACTICE EXERCISE

ANSWER KEY

Item Number	Correct Response	Reference
1	D	Lesson 5, Para 3.a.1,2,3
2	A	Lesson 5, Para 4
3	B	Lesson 5, Para 5
4	D	Lesson 5, Para 6.a to 6.h

LESSON 6

FOOD SERVICE DATA FEEDBACK

Critical Task: 101-524-3160

OVERVIEW

LESSON DESCRIPTION:

This lesson was designed to provide soldiers in the Food Service Specialist Basic Noncommissioned Officer Course (BNCOC) with information on reporting unsatisfactory subsistence.

TERMINAL LEARNING OBJECTIVE:

ACTION: Students will be introduced to the principles of the Food Service Data Feedback Program, describe the purpose of the Subsistence Item Survey, and prepare a DD Form 1608 (Unsatisfactory Material Report (Subsistence)).

CONDITION: In a self-study environment.

STANDARD: To demonstrate competency of this task, you must achieve a minimum score of 70 percent on the subcourse examination.

REFERENCES The material contained in this lesson was derived from the following publications: AR 30-1 (The Army Food Service Program) and AR 30-16 (Food Service Data Feedback Program)

INTRODUCTION

This program is designed to check the fitness, desirability, and quality of troop issue food items at installations. It requires coordination among food service, veterinary, and troop issue functions.

1. Principles of the Food Service Data Feedback Program

a. Improve quality of subsistence. The program allows each soldier to help improve and maintain the quality of subsistence delivered to installations and served in dining facilities.

b. Report on quality of subsistence. The program allows food service personnel to report on the quality and usability of the food items issued to them for preparing meals. These reports will consider factors such as available personnel, equipment, menus, recipes, and facilities.

c. Provides necessary information to the Defense Supply Center-Philadelphia (DSCP). The Food Service Data Feedback Program provides necessary information to the DPSC. This information is necessary for the DSCP to initiate warranty action against the contractor on items that do not meet specification requirements.

d. Means to test new or improved subsistence. The program provides the means for the Army to service test a new or improved subsistence item that has been included in the military supply system.

2. Completing a DD Form 1608. The Unsatisfactory Material Report Subsistence (UMR) is a report on food items that are found unsuitable for the intended use in some identifiable and measurable way. The report pertains to foods obtained through military supply channels. Appendix A (Figure A-1) provides a sample DD Form 1608.

a. Application. The UMR applies to Army activities with:

(1) TISAs.

(2) Food service operations.

(3) ACES commissaries that handle specification subsistence items.

(4) Veterinary food inspection activities.

(5) Other activities that perform quality assurance functions.

b. Preparer. The UMR is initiated by the individual who first identifies the deficiency (the cook or food operations sergeant at a dining facility, Troop Issue Subsistence Officer (TISO), or veterinary food inspector). The initiating activity should place a sample on hold or request the veterinary activity to submit a sample to the regional laboratory for detailed analysis.

c. Coordination. Preparation of the report may require timely coordination between food service, TISA, commissary, and veterinary personnel.

(1) The TISO/commissary officer will supply information on the source of shipment, date supplies were received, TISA requisition number, and size of lot or shipment received at the installation.

(a) The TISO/commissary officer will retain a sample on hold until disposition instructions are received.

(b) The TISO/commissary officer will submit a Standard Form 364 (Report of Discrepancy (ROD)) with the DD Form 1608 to claim credit for losses due to receipt of unsatisfactory products from DSCP.

(2) The veterinary food inspector will supply information on conformance to specifications, contamination, or fitness for human consumption. A veterinary condemnation certificate will be provided to the TISA to support requests for credit submitted on Standard Form 364.

(3) The preparer will obtain all other information from the item or shipping containers.

(4) Food service personnel may submit official subsistence complaints on DD Form 1608.

d. Severe Item Deficiency. Notify Army Center of Excellence, Subsistence (ACES) by telephone when a severe item deficiency is found. Immediate notice allows quick action to place wholesale stocks on hold. If appropriate, warranty action can also be taken against the supplier. The information required is the same as on DD Form 1608. A DD Form 1608 should be submitted within three working days with the following annotation in the narrative description block, "Confirmation of Telephone Call _____." Severe item deficiencies include:

(1) Potential health hazards (for example, off-odor, off-color, or off-flavor products).

(2) Confirmed health hazards (for example, products containing foreign objects such as wire or glass).

(3) Significant deviation from specifications (for example, the item is not the product specified; it does not perform as specified; or it is not usable as received).

e. Items to Report. The following deficiencies in subsistence received from supply sources established by DSCP or other military procurement agencies should be reported on DD Form 1608.

(1) Unwholesome products (foreign material, bacterial contamination, spoilage, and insect or rodent infestation or contamination).

(2) Unsatisfactory product characteristics (off-flavor; improper size, texture, color or odor; difficulty mixing, rehydrating, or opening; or too time-consuming to prepare).

(3) Subsistence items that do not meet the specification.

f. Items Which Should Not Be Reported. Do not report the following items on DD Form 1608.

(1) Damage caused by inadequate packaging, packing, or marking. Standard Form 364 should be used to report packaging or packing damage and marking deficiencies.

(2) Loss resulting from mishandling and improper storage at the installation.

(3) Discrepancies or losses that are resolved, corrected, or adjusted at the installation level (for example, credit on fresh fruits and vegetables received from DSCP).

(4) Losses or damages resulting from shipper discrepancies and carrier mishandling.

g. Completing DD Form 1608. Instructions for completing DD Form 1608 are printed on the back of the form.

(1) DD Form 1608 form should be used to report all unsatisfactory conditions on all subsistence items procured by the Defense Supply Center-Philadelphia and is not limited to those in nonconformance with specification requirements. Timely reporting is essential so that action, if appropriate, may be started prior to expiration of the warranty period. When unsatisfactory conditions are not related to specification requirements, special attention should be given to Item 17.

(2) Photographs are an excellent method for illustrating the exact nature of many discrepancies. Inspection and testing records should be forwarded with the UMR, when appropriate. Use additional sheets as necessary and identify with related item number.

(3) ITEM 3. State complete name and address.

(4) ITEM 4a. State nomenclature in sufficient detail to ensure (identity include as necessary, type, grade, class, etc.). (See Federal Supply Catalog C-8900-SL or Master Item Identification List.)

(5) ITEM 4b. AFCLSAC (Armed Forces Consumer Level Subsistence Appraisal Committee). Self-explanatory.

(6) ITEM 6. Specification number or Institutional Meat Purchase Specification (IMPS) number from the shipping container. If the item is from a Brand Name Contract, indicate "BNC".

(7) ITEM 7. To be obtained from shipping container

(8) ITEM 8. To be obtained from the service supply activity. State the name of the Defense Logistics Agency (DLA) depot or distribution point or the vendor's name.

(9) ITEMS 9 and 10 Required Information can be obtained from the shipping container.

(10) ITEM 11. List the manufacturer's product code (usually shown as a series of numerals and letters printed or embossed on bottles, cartons, and cans) found on primary containers. These codes may also be found printed or stenciled on shipping container.

(11) ITEM 12. To be obtained from shipping container.

(12) ITEMS 13, 14, 15 and 16. To be obtained from service supply activity records, Enter complete requisition number.

(13) ITEM 17. Include a narrative description of the unsatisfactory condition that makes the item unsuitable for intended use or affects consumer satisfaction or acceptance. List storage conditions or other factors that may relate to the unsatisfactory condition of the product. Indicate current status of product (for example on hold, normal issue, or expedited issue).

(14) ITEM 18. State recommendations regarding disposition of supplies, revision of specification requirements, and revision of purchase requirements as to size of units and quantities. List all other discrepancy forms reporting this same discrepancy and item.

(15) ITEM 19. Self-explanatory.

(16) ITEM 20c. Acceptable Quality Level is the maximum percent defective (or the maximum number of defects per hundred units) that for the purpose of sampling inspection can be considered satisfactory as a process average (MIL-STD-109).

(17) ITEM 21. Self-explanatory.

h. Distribution

(1) Originator will prepare original and three copies of the survey report, retain one copy, and forward the remaining copies to one of the following service offices, as appropriate. .

Director, Army Center of Excellence, Subsistence
ATTN: ATSM-CES-QUAD
1201 22 nd Street
Fort Lee, VA 23801-1601

Commanding Officer
Navy Food Service Systems Office
ATTN: Code SV
Washington, DC 20374-1662

Air Force
(Troop Issue / Specification Items Only)
HQ, AFESC-DEHF
Tyndall AFB, FL 32403-6001

Air Force
(Brand Name Resale Items Only)
HQ, AFCOMS / SGPM
Kelly Air Force Base, TX 78241-6290

Commandant of the Marine Corps
Code LFS-4
Headquarters US Marine Corps
Washington, DC 20380-001

(2) Service office will review reports for completeness and validity and, if valid and complete, forward original for action to:

Commander
Defense Supply Center
ATTN: DSCP-HQS (CDCFP)
Philadelphia, PA 19101-8419

and forward an information copy to:

Commander
US Army Research, Development &
Engineering Center
ATTN: STRNC-W
NATICK, MA 01760-5000

4. Summary. In this ACCP we have discussed how to provide food service feedback using the UMR and SIS. When the Army Food Service Data Feedback Program is used properly, it is an excellent aid in upgrading the quality of subsistence supplies.

PRACTICAL EXERCISE

Situation: Complete the DD Form 1608 (Unsatisfactory Material Report (Subsistence)) (at Appendix A) using the following situation and your extracts.

1. You are food service sergeant Abram Maclah, E-7, assigned to a dining facility at Fort Indiantown Gap, building number 360, at 1208 Thunderbird Street, New Castle, DE 19720. Your duty phone number is Commercial (203) 627-4773 and DSN 213-4773. You are attached to 119th Maint Bn.

2. During a quarterly Subsistence Item Survey, one of the subsistence items surveyed is found to be severely deficient. The item is hamburger meat supplied by Bargain Beef from its plant at 5001 River Road, Alexandria, VA 22333-0001. The meat is off-color and a potential health hazard. The meat's NSN is 8999-00-189-5117. It is listed as, "Meat, hamburger patties."

3. The food item comes to your facility from the supply point, Camp Barnum, 3333 Old Bay Lane, Havre De Grace, MD 21078. It has contract number ZZE717-90-V-9433, contractor lot number 15, product code NR, and requisition number W33QlR592297052. The supplies were packed on 2 February 1989, and received on 7 February 1989.

4. The Subsistence Item Survey (SIS) examined the entire shipment of 35 cases of 50 pounds each. Hamburger patty units are measured in pounds. The quantity on hand is 33 cases.

5. You immediately notify ACES by telephone, so the wholesale stocks are put on hold. You called the office of Captain Richard Gutner on 89/2/20 at approximately 11:00 AM, (425) 876-0201.

6. Next, you must submit DD Form 1608 (Unsatisfactory Material Report (Subsistence)) to ACES within 3 working days with an appropriate annotation. You recommend that the contractor be inspected or replaced as a supplier of this food item.

7. You begin the DD Form 1608 (Unsatisfactory Material Report (Subsistence)) on the 20th of February 1989, and you complete it now on the 22nd of February 1989. You will then send the form to:

Commander
Director, Army Center of Excellence, Subsistence
ATTN: ATSM-CES-QUAD
1201 22nd Street
Fort Lee, VA 23801-1601

PRACTICAL EXERCISE
ANSWER KEY

UNSATISFACTORY MATERIAL REPORT *(Subsistence)*
(See Instructions on reverse before completion.)

1. DATE PREPARED *(YYMMDD)*: 890220

Form Approved OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 11 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

2. RECEIVING ACTIVITY
a. NAME: Army Center for Excellence, Subsistence
b. ADDRESS *(Street, City, State and Zip Code)*: ATTN: Subsistence and Food Department, Fort Lee, VA 23801

3. ORIGINATING ACTIVITY
a. NAME: 119th Maint Bn, Dinning Facility
b. ADDRESS *(Street, City, State and Zip Code)*: 1208 Thunderbird St, BLDG 360, Fort Indiantown Gap, Newcastle, DE 19720

4.a. ITEM NOMENCLATURE: Meat, Hamburger Patties

b. AFCLSAC EVALUATION: [X] YES [ ] NO

5. NATIONAL STOCK NUMBER: 8999-00-189-5117

6. SPECIFICATION NUMBER/IMPS NUMBER:

7. CONTRACTOR
a. NAME: Bargain Beef
b. PLANT ADDRESS *(Street, City, State and Zip Code)*: 5001 River Road, Alexandria, VA 22333-0001

8. SOURCE OF SHIPMENT *(Depot, Distribution Point, Direct Vendor Delivery, etc.)*: Camp Barnum, 3333 Old Bay Lane, Havre De Grace, MD 21078

9. CONTRACT NUMBER	10. CONTRACTOR LOT NUMBER	11. PRODUCT CODE	12. DATE OF PACK *(YYMMDD)*
ZZE717-90V-9433	15	NR	890202

13. REQUISITION NUMBER	14. DATE SUPPLIES RECEIVED *(YYMMDD)*	15. SIZE OF LOT/SHIPMENT a. CASES	15. SIZE OF LOT/SHIPMENT b. UNITS	16. QUANTITY ON HAND
W33Q1R592297052	890202	35		33

FOR ALL USERS *(Food Service, Commissary, Veterinary, Troop Issue Subsistence, etc.)*

17. NARRATIVE DESCRIPTION OF UNSATISFACTORY QUALITY AND IDENTIFICATION OF DEFECTS
All cases of Hamburger Patties were inspected and found to be off color, presenting a potential health hazard. This is considered a severe item deficiency.
Confirmation of Telephone call to CPT Richatd Gutner
990220 approxomately 11:00 AM C(425) 876-0201

18. RECOMMENDATIONS
Contractor be inspedcted or replaced as the supplier of this food item.
890220

19. VERIFYING OFFICIAL

a. TYPED NAME *(Last, First, Middle Initial)*	b. TITLE	c. GRADE
Maclah, Abram	FSS	E 7
d. TELEPHONE NUMBER *(A - Autovon; C - Comm)*	e. SIGNATURE	f. DATE SIGNED *(YYMMDD)*
DSN 213-4773 C (203) 627-4773	Signature	890222

20. INSPECTION RESULTS *(When appropriate, report can be forwarded by users without this section being completed.)*

a. TYPE OF EXAMINATION	b. INSPECTION LEVEL	c. ACCEPTANCE QUALITY LEVEL	d. CLASS OF DEFECT	e. ACCEPTANCE NUMBER	f. REJECTION NUMBER	g. SAMPLE SIZE	h. NUMBER OF DEFECTS OR DEFECTIVES	i. SAMPLE UNIT

21. AUTHORIZED INDIVIDUAL PERFORMING INSPECTION

a. TYPED NAME *(Last, First, Middle Initial)*	b. TITLE	c. GRADE
d. TELEPHONE NUMBER *(A - Autovon; C - Comm)*	e. SIGNATURE	f. DATE SIGNED *(YYMMDD)*

DD Form 1608, OCT 88 *Previous editions are obsolete.* USAPPC V1.00

Figure 6-1
Correctly completed DD Form 1608 (Unsatisfactory Material Report (Subsistence)).

Appendix A

Sample DD Form 1608
(Use to complete Practice Exercise)

UNSATISFACTORY MATERIAL REPORT *(Subsistence)*
(See Instructions on reverse before completion.)

1. DATE PREPARED *(YYMMDD)*

Form Approved OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 11 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

2. RECEIVING ACTIVITY	**3. ORIGINATING ACTIVITY**
a. NAME	a. NAME
b. ADDRESS *(Street, City, State and Zip Code)*	b. ADDRESS *(Street, City, State and Zip Code)*

4. a. ITEM NOMENCLATURE	b. AFCLSAC EVALUATION			
		YES		NO

5. NATIONAL STOCK NUMBER	**6. SPECIFICATION NUMBER/IMPS NUMBER**
7. CONTRACTOR a. NAME b. PLANT ADDRESS *(Street, City, State and Zip Code)*	**8. SOURCE OF SHIPMENT** *(Depot, Distribution Point, Direct Vendor Delivery, etc.)*

9. CONTRACT NUMBER	**10. CONTRACTOR LOT NUMBER**	**11. PRODUCT CODE**	**12. DATE OF PACK** *(YYMMDD)*
13. REQUISITION NUMBER	**14. DATE SUPPLIES RECEIVED** *(YYMMDD)*	**15. SIZE OF LOT/SHIPMENT** a. CASES / b. UNITS	**16. QUANTITY ON HAND**

FOR ALL USERS *(Food Service, Commissary, Veterinary, Troop Issue Subsistence, etc.)*

17. NARRATIVE DESCRIPTION OF UNSATISFACTORY QUALITY AND IDENTIFICATION OF DEFECTS

18. RECOMMENDATIONS

19. VERIFYING OFFICIAL

a. TYPED NAME *(Last, First, Middle Initial)*	b. TITLE	c. GRADE
d. TELEPHONE NUMBER *(A - Autovon; C - Comm)*	e. SIGNATURE	f. DATE SIGNED *(YYMMDD)*

20. INSPECTION RESULTS *(When appropriate, report can be forwarded by users without this section being completed.)*

a. TYPE OF EXAMINATION	b. INSPECTION LEVEL	c. ACCEPTANCE QUALITY LEVEL	d. CLASS OF DEFECT	e. ACCEPTANCE NUMBER	f. REJECTION NUMBER	g. SAMPLE SIZE	h. NUMBER OF DEFECTS OR DEFECTIVES	i. SAMPLE UNIT

21. AUTHORIZED INDIVIDUAL PERFORMING INSPECTION

a. TYPED NAME *(Last, First, Middle Initial)*	b. TITLE	c. GRADE
d. TELEPHONE NUMBER *(A - Autovon; C - Comm)*	e. SIGNATURE	f. DATE SIGNED *(YYMMDD)*

DD Form 1608, OCT 88 *Previous editions are obsolete.* USAPPC V1.00

Figure 6-2

Sample DD Form 1608 (Unsatisfactory Material Report (Subsistence)) Blank

LESSON 7

QUALITY ASSURANCE

Critical Tasks: 101-524-3107; 101-524-3282

OVERVIEW

LESSON DESCRIPTION:

This lesson was designed to provide soldiers in the Food Service Specialist Basic Noncommissioned Officer Course (BNCOC) with information on defining and determining quality assurance of food products.

TERMINAL LEARNING OBJECTIVE:

ACTION: Students will define and determine quality assurance list the five human senses used to properly evaluate food products, list methods to develop these senses, and determine specific details of the quality assurance process.

CONDITION: In a self-study environment.

STANDARD: To demonstrate competency of this task, you must achieve a minimum score of 70 percent on the subcourse examination.

REFERENCES The material contained in this lesson was derived from the following publications: FM 10-23-2 (Tactics, Techniques, and Procedures for Garrison Food Preparation and, Class I Operations Management), and TM 10-412 (Armed Forces Recipe Service and Index of Recipes)

INTRODUCTION

Quality assurance is the term that describes the measures that must be taken to produce the best possible food products. Quality assurance should cover all areas of your operation: your cooks, your equipment, the receiving and handling of food items, the finished product served to your diner, and how it is served to your diner. Quality assurance should be an evaluation process that detects critical areas that need improvement. One of the areas you will need to concentrate on is evaluation of food preparation procedures. The evaluation process is simple and can be done in a short period of time.

1. Quality Assurance Applied

a. Look at, smell, taste, and touch prepared foods.

(1) Use recipe cards as a reference to determine if faults exits. Determining that a product is faulty does not complete the evaluation process.

(2) Recommend corrective action and follow through to ensure it is taken.

b. Evaluate work performed.

(1) Evaluate personnel proficiency in progressive cooking, service, using the correct serving utensil, and replenishing the serving line.

(2) Determine the cause of and identify the effect of inspection deficiencies.

(3) The evaluation of finished products.

(a) Develop a checklist for evaluating food. What areas are you looking for? Set the standards for evaluation. Advise personnel on the quality assurance program standards and perform the evaluation.

(b) You will want to check for structure, such as volume, holes or tunnels, heaviness, and, texture. Check for taste, including foreign, burned, or scorched taste, and for flavoring or seasoning. Check food for overcooking or undercooking by the instructions on the recipe card. Make on-the-spot corrections of faults, if possible.

(c) Document your results. Make a list of deficiencies. Try to find the cause. Refer to your checklist of critical areas and identify the effect of deficiencies.

(d) Provide feedback. When presenting your evaluation, make sure you provide positive feedback with negative feedback so you do not discourage your cooks. After deficiencies have been pointed out, recommend and follow up to ensure actions have been taken to improve food quality.

(e) Review total deficiencies. Review your past evaluations and compare them with the results of our latest evaluation. Also, examine the results of your previous recommendations.

2. The Human Senses as Related to Evaluation. The human senses, known as sensory perception, is simply defined as using your senses to their maximum potential. We all have specific senses that we use every day of our life. Most of us take these senses for granted. Understanding and developing your senses is critical as a Senior First Cook. You will use most, if not all, of your senses when conducting quality assurance evaluations.

a. Sight. Your sense of sight is one of the most frequently used senses and probably the most important. Your diners will look at your food before they will eat it and just by sight will have judged that food item edible or not. If it is not appealing, they will not accept it. For example, beef tongue served whole on a platter will turn most people off. However, present the same tongue in an appealing manner, trimmed, thinly sliced, and arranged on the platter with an appropriate garnish and most people will select it and believe it to be roast beef. When conducting your evaluation of a food product, you can recognize certain features, such as freshness, appeal, color, shape, size, texture, and consistency. Your sense of sight will tell you if a product is ”just right.“ It will then be your job to determine further why the product does not meet standards.

b. Smell. The aroma of a food product is important. This adds to your eating enjoyment and has a direct influence on taste. Flavor is perceived as a combination of smell and taste. The smell, or aroma, is established first. This sense is the keener of the two and will assure a more positive and faster identification of a food product. When conducting your evaluation of a product, certain smelling techniques can aid you. A deep sniff at short intervals using both nostrils is the best. If possible, sniff with your mouth open while waving at the product from the region of the nose to mouth. This permits full penetration of the sensory area. When using this procedure, ensure the surrounding air is free from other aromas.

(1) If a comparison of a similar product is being made, a sniff of one sample should be followed by a sniff of the other. This sequence repeated several times should be enough for a positive identification.

(2) If a control sample product is being analyzed, the control sample is evaluated first. Then the unknown sample is evaluated.

(3) Dry products can be evaluated by first blowing on the sample with moist breath and then smelling. The moisture from your breath will release the aroma in the product ensuring you a more precise evaluation.

(4) The nose is the center of aroma evaluation. A few molecules of an aroma-producing product will excite this organ enough to make a determination with speed and accuracy. When we breathe, air enters through our nostrils and passes from the lower nostrils up through the nasal passages and down to the region of the throat. The area controlling the sense of smell is located in the highest part of the nasal cavity known as the olfactory bulb tract. This tract is moist mucus membrane containing a large number of nerve fibers. Although the olfactory tract is the center of aroma detection for the brain, the entire nasal cavity aids in evaluating a product.

c. Taste. When you evaluate a product, you must ultimately taste it even if you dislike it. To properly evaluate a product, you must use your sense of taste: your tongue. Your tongue has over 9,000 taste buds, and the distribution of the taste buds over the tongue is uneven. This makes the tongue unequally sensitive to each kind of taste and less

sensitive to sweetness. Although you lose taste buds, they have the ability to regenerate themselves within 7 days; however, with age the number of taste buds decreases.

(1) The following shows the strength a solution must be before taste sense occurs:

(a) Sweetness 1 part to 200 parts water.

(b) Saltiness 1 part to 400 parts water.

(c) Sourness 1 part to 130,000 parts water.

(d) Bitterness 1 part to 2 million parts water.

(2) The tongue is divided into four main areas that detect different flavors:

(a) Front tip detects sweetness.

(b) Front sides detect saltiness.

(c) Backsides detect sourness.

(d) Back center detects bitterness.

(3) Different people have varying taste thresholds because of many reasons, such as smoking, age, alcohol, colds, and nasal problems.

d. Touch. The sense of touch has a part in evaluations. It can be described as the threshold of pain. This sense involves temperature variation, textures, and sensations such as burning by spices or condiments. The role of touch in flavor identification is important since our senses are modified or intensified by feeling. Your final assessment can be altered or misinterpreted by touch, or lack of. The entire mouth and lower nasal cavity are affected by touch.

(1) Temperature is very important to the sense of touch. For example, if carbonated drinks are below 40 degrees Fahrenheit, they taste abnormal. Coffee above 180 degrees Fahrenheit does not taste normal, and food above 100 degrees Fahrenheit will not give off the true taste of sourness.

(2) Textures to be aware of are firmness, softness, juiciness, chewiness , and grittiness. If a food's texture is different from normal, the diner may be dissatisfied.

e. Sound. The sense of sound is used in evaluating and cooking foods, but in comparison to the other four senses, it is used less frequently. An example of using sound is eating an apple. If the apple is fresh, you will hear a firm, crisp noise. When cooking, you will know if the temperature of fat is correct if you hear it sizzle.

3. General Evaluation Procedures. The human senses or sensory perception have nutritional aspects when evaluating food items and can be applied in many different ways. When evaluating food products, remember to have a checklist handy to aid you. Begin your evaluation by first looking at the product.

a. Check food for structure. Does the item look appealing? For example, bread should not have holes or tunnels. Check food for volume and texture. Then ask yourself, ”Does this look like something I would eat?“

b. Next, smell the product using one of the smelling techniques. Does the product smell as it should?

c. Check food for taste. You should be able to recognize foreign, burned, or scorched taste, and to identify too much flavoring or seasoning. Then, taste it. What flavors should this product have?

d. Many times you will need to roll the product around in your mouth to absorb the full flavor. Remember that the tongue has over 9,000 taste buds, and the distribution of the taste buds over the tongue is uneven.

e. Last, but not least, apply your senses of touch and sound. Touch plays a big role in odor and flavor identification. The entire mouth cavity and lower nasal cavity are affected by touch. You will not use sound as frequently as the other senses, but sound can tell you if you are cooking with the correct temperature.

f. Using all five of your senses will ensure greater accuracy when evaluating food products. There are times when you will not need to use all five. However, the more senses you use the better.

4. Evaluation of Preparation Procedures. When conducting the actual evaluation of the food produced, you want to determine whether the food is prepared according to the recipe cards. These are general procedures on preparing different kinds of food products. Use this information to guide you when performing the actual evaluation. Base your evaluation on the recipe card procedures required for preparing the food, and observe the cook.

a. Ensure safety precautions are followed:

(1) Hot pads used for handling hot items.

(2) Cooking utensils spaced on cooking surfaces.

(3) Spills cleaned up immediately.

(4) Food supplies handled safely.

(5) Knives used safely.

(6) Garrison equipment operated safely.

(7) Notification given when working behind others.

b. Ensure preliminary food preparation procedures are followed:

(1) Read and interpret Production Schedule.

(2) Read and interpret recipe cards.

(3) Prepare equipment for use.

(4) Assemble all necessary ingredients.

(5) Assemble all necessary utensils.

(6) Coordinate with the food service sergeant on procedural changes necessary due to lack of equipment and/or ingredients.

c. Ensure personnel prepare foods properly:

(1) Weigh or measure each ingredient.

(2) Process ingredients for use.

(3) Combine ingredients properly.

(4) Apply dry/moist heat according to the recipe or refrigerate noncooked items.

(5) Check foods while cooking: noncooked foods during preparation.

(6) Check degree of doness.

d. Ensure assigned personnel do following for set-up of serving lines:

(1) Prepare cook to order items properly.

(2) Assemble hot and cold sandwiches.

(3) Portion serving as directed.

(4) Maintain sanitary standards.

(5) Replenish items on the serving line.

(6) Replenish items on the serving lines.

(7) Wipe up spills as they occur.

(8) Act courteous to diners.

e. Evaluate finished foods by doing the following:

(1) Check foods for taste.

(2) Check foods for over and under cooking.

(3) Check foods for appearance.

(4) Detect and record faults.

(5) Direct corrections of detected faults.

f. Dispose of leftover foods in the following manner:

(1) Determine and record foods to be discarded.

(2) Determine foods to be used as leftovers.

(3) Determine how leftovers are to be used.

(4) Record leftovers to be used on DA Form 3034 and DA Form 3034-1.

g. Direct personnel performing sanitary services in the following:

(1) Cleaning kitchen area.

(2) Cleaning dining room area.

(3) Cleaning storeroom.

(4) Cleaning dish wash, pot and pan area.

(5) Cleaning outside area.

h. Train subordinates in quality assurance measure:

(1) Proper size of ingredients.

(2) Proper weight and measures.

(3) Proper cooking procedures--do not over cool.

i. Direct On-the–Spot Correction. Remedy incorrect procedures immediately. Explain the problem to the cook, and show the individual the correct way. Then have the cook repeat the procedure.

j. Document Results of the Evaluation. If it is not practical to make on-the-spot correction, record your observation, making note of consistent deficiencies. Present the results of your evaluation at meetings, and encourage your cooks to improve. Be precise in your observations. If a standard product was not prepared, note whether the error was in the procedure or in the ingredient.

k. Provide Positive and Negative Feedback. When presenting your evaluation, make sure you provide positive feedback with negative feedback so you do not discourage your cooks. After pointing out deficiencies, make recommendations and follow through to ensure cooks take actions to improve food quality.

l. Review Total Deficiencies. Review past evaluations and compare them with the results of your last evaluation, and hold an AAR. Never turn an AAR into a lecture. Ensure the discussion ends on a positive note, leaving the cook feeling confident.

5. Determining Food Quality. Your evaluations should prevent recurring mistakes. Make sure cooks use the proper culinary skills and follow recipes closely to guarantee correct results. It is also important that you ensure nutrients are not lost in the cooking process. The standards on which you base your evaluation depend on two major factors: the background and experience of each cook and established SOPs as incorporated in the recipe cards. For example, you can expect more from a cook with five years of work experience than from a new cook. With regard to the second factor, SOPs specify the tried and tested ways to prepare food items. From these standards, you can develop a general checklist to help you evaluate a food product. A checklist should at least cover the following:

a. Check Food for Structure. Bread, for example, should not have holes or tunnels. Check food for volume and texture.

b. Check Food Taste. You should be able to recognize foreign, burned, or scorched tastes and to identify too much flavoring or seasoning.

c. Check Food for Overcooking. If food is dry and has shrunk during cooking, the food is over-cooked.

d. Check Food for Undercooking. Check the time and temperature used with the instructions on recipe card. Use a thermometer to check the internal product temperature.

6. Summary. During this lesson, you have read about how to use your senses and knowledge of nutrients to evaluate prepared foods. Only by practice and constant attention to detail will you be able to recognize a faulty or substandard product and recommend appropriate corrective action.

PRACTICE EXERCISE

The following items will test your grasp of the material covered in this lesson. There is only one correct answer for each item. When you complete the exercise, check your answer with the answer key that follows. If you answer any item incorrectly, study again that part of the lesson, which contains the portion involved.

1. What term best describes quality assurance?

   A. Measures that must be taken to produce the best possible food products
   B. Evaluation of finished products
   C. Provide feedback
   D. All of the above.

2. Human senses, known as sensory perception, is simply defined as:

   A. Specific senses that we use every day of our lives
   B. Using your senses to their maximum potential
   C. Developing your senses
   D. None of the above

3. When conducting the actual evaluation of the food produced, you want to:

   A. Use all five of your senses
   B. Apply your senses of touch and sound
   C. Determine whether the food is prepared according to the recipe card
   D. All of the above

4. The standards on which you base your evaluation depend on two major factors:

   A. Cooks use the proper culinary skills
   B. Follow recipes closely
   C. Ensure nutrients are not lost in the cooking process
   D. Experience of each cook and the established SOPs as incorporated in the recipe cards

PRACTICE EXERCISE

ANSWER KEY

Item Number	Correct Response	Reference
1	A	Lesson 7, Introduction
2	B	Lesson 7, Para 2
3	C	Lesson 7, Para 4
4	D	Lesson 7, Para 5

LESSON 8

NUCLEAR, BIOLOGICAL, AND CHEMICAL OPERATIONS FOR THE SENIOR FIRST COOK

Critical Task: 101-524-3281

OVERVIEW

LESSON DESCRIPTION:

This lesson was designed to provide soldiers in the Food Service Specialist, Basic Noncommissioned Officers Course (BNCOC) with information on nuclear, biological, and chemical operations.

TERMINAL LEARNING OBJECTIVE

ACTION: Students will identify the procedures for the following: protecting subsistence from NBC attack; decontaminating contaminated subsistence; and disposing of contaminated subsistence.

CONDITION: In a self-study environment.

STANDARD: To demonstrate competency of this task, you must achieve a minimum score of 70 percent on the subcourse examination.

REFERENCES: The material contained in this lesson was derived from the following publications: FM 10-23

INTRODUCTION

Generally, food is not prepared or served in an environment contaminated by NBC agents. It is important to continue operations only after ensuring adequate individual protection. Field kitchens must be moved to uncontaminated areas and decontaminated before food service can be resumed. It is important to remember that striking and loading the field kitchen is more difficult and takes longer when soldiers are wearing chemical protective clothing. The tactical situation and the priorities for decontamination will determine how long MREs are used.

In exceptional situations it may be necessary to serve food in a contaminated environment. The decision to feed in a contaminated environment rests with the commander. Provisions must be made to partially decontaminate personnel and ensure that food does not contact contaminated terrain or material. The method of feeding troops in such an environment depends on the type and extent of contamination and on the availability of protective shelters. Troops in an area contaminated by chemical agents with no detectable vapor hazard or in an area where they are under the constant threat of NBC attack must be fed on a rotating basis. Feed about 25% of the troops at a time. The other 75% should remain masked. Take care at all times to avoid contaminating food.

If the troops are in a contaminated area where there is also a vapor hazard, feed them inside a shelter equipped with an overpressure system. The overpressure system fills the shelter with pressurized air that has been filtered to remove NBC contamination. The M20 simplified collective protection equipment includes a built-in overpressure system. Since this shelter has a limited capacity, the commander and the FOS must plan to feed the troops in shifts. Entering and exiting this shelter is a complicated procedure. FM 3-4 describes how it is done. STP 21-1-SMCT contains more information on how to survive and conduct operations in a contaminated environment.

1. Food Protection. Food must be protected from NBC contamination. Procedures for subsistence protection must be a part of operational plans and SOPs at all levels of food service and Class I operations. Consuming contaminated food may cause illness, injury, or death. Food stored outdoors should be under overhead cover as mustard or VX agents will damage or degrade most protective wraps. Some food items may be decontaminated and consumed. However, decontamination is often a difficult and time-consuming process. Subsistence must be stored in ways to provide maximum protection in the presence of NBC contaminants. Planning for storage may mean the difference between having edible or non-edible subsistence. Foods that are packed in cans, bottles, airtight foil, or film wraps, as well as food packaged in sealed boxes or multi-layered wrappings may be stored outdoors or in partially protected areas. Foods not packaged in this manner must have covered storage inside if possible to protect them from NBC contamination.

2. Nuclear Contamination. The two types of nuclear contamination are induced radiation and fallout. Induced radiation is not normally a food service problem as blast or heat will normally destroy material stored in the induction zone. Food may be contaminated by fallout miles away from the blast site. Overhead cover is essential or items may become so heavily contaminated that decontamination becomes difficult or impossible. Food that is packaged in cans or other sealed containers is not in danger of contamination by fallout as long as it remains packaged. Foods not packaged in this way, such as fresh fruits and vegetables and fresh meat, can be protected from fallout by putting them in sealed containers. Insulated food containers and refrigerators are excellent protection from fallout. Containers, such as sea and/or MILVANS, trucks with containerized cargo areas, and trucks with covered cargo beds, also offer some protection. If this type of protection is not available, place a canvas tarp or plastic sheet over the items. This will make it easier to decontaminate them.

3. Biological Contamination. The two types of biological agents are pathogens and toxins. Stringent sanitation in preparing and serving food will reduce contamination by pathogens. Since pathogens may be spread by insects and rodents, insect and rodent control is especially important. Toxins are poisonous substances produced by pathogens and other organisms. To protect food from toxins, store it in sealed, airtight containers. Decontaminate the containers before opening them.

4. Chemical Contamination. Chemical weapons release toxic chemicals. Food may be protected from chemical contamination by placing it in a sealed, airtight container. Containers must be decontaminated before the food can be consumed. If the unit commander determines that the food must be decontaminated, follow the procedures noted in the “Chemical” section. Chemically contaminated food is difficult to decontaminate. Due to limits in the ability to detect contamination that is bound to other materials, the use of such food will always pose a major risk.

5. Food Inspection. Food or water that may be contaminated by nuclear fallout or biological or chemical agents must be inspected. The Army veterinary service has the sole responsibility for monitoring and recommending food decontamination or

disposition procedures and preventive medicine handles water. If food or water become contaminated, it must not be consumed unless it is first decontaminated or approved for consumption. Food or water that is free from contamination may be contaminated by equipment or personnel, so they must be inspected as well.

6. Detection methods. It is essential that every soldier, especially if he is involved in food service, know how to detect NBC contamination. Methods of inspecting food, water, personnel, and material for signs of NBC contamination are described below.

a. Nuclear. The radiac meter AN/VDR-2 is used to monitor food, water, personnel, and material for possible contamination by induced radiation or fallout. This instrument is commonly known as a Geiger counter. To inspect food, personnel, or material for nuclear contamination, follow the step-by-step directions in the operator's manual. Background radiation will produce a signal even in the absence of contamination. An audible signal (clicks through the headphone) provides the most sensitive indication in changes in the quantity of radiation present. Read the meter to determine the level of radioactivity. Food is contaminated if it produces a reading greater than two times that of the surrounding environment in an uncontained area. These Geiger counters are not sensitive enough to detect unacceptable levels of radioactivity in water. Use water only from an approved source.

b. Biological. Most Army units have no capability to detect the presence of biological agents in food. The supporting medical unit is responsible for inspecting food for obvious signs of spoilage, such as slime, discoloration, and odor. Keep in mind that contaminated food may look, smell, and taste normal. If food is suspected of being contaminated by biological agents, request a veterinary inspection. Use water from an approved source for preparing food and for drinking. If no water from an approved source is available, disinfect the available water before using it. Water disinfection procedures are described in Chapter 12 of FM 10-23. Biological warfare agents intended to attack humans produce no outward changes in food or material.

> WARNING
>
> Disinfection is not effective against all agents. Use water from an unapproved source only when there is no alternative. Food and water may be contaminated by contact with sick food handlers or unsanitary equipment. Inspect food handlers at the beginning of each shift, and inspect food service operations to be sure that proper sanitation is being practiced. See Chapter 12 of FM 10-23 for more information on food service sanitation.

c. Chemical. The first action to take when chemical agents are present is to stop breathing, put on your mask, and sound the alarm. Next, evacuate troops in the area. Most chemical agents will change the taste, smell, or appearance of food. Food may become very poisonous without any change in appearance, taste, or smell. Never taste

food to test it for chemical agents. Use the M8A1 automatic chemical agent alarm and the M256 chemical agent detector kit to detect the presence of toxic chemicals. Note that M8A1, M256, M8, and M9 papers cannot be used to determine contamination of foodstuffs. The CAM is being fielded as the primary Army Chemical Agent Monitor. Also, the unit should have chemical agent paper (M8 and M9) to detect and identify agents on containers, personnel, and equipment. Operating instructions for the chemical agent alarm are in TM 3-6665-225-12. Operating instructions for the chemical agent monitor kit are in TM 3-6665-307-10. Chemical agents in water can be detected with the M272 detector kit. Maximum allowable concentrations are in TB MED 577.

7. Disposal. Generally, food and water in airtight containers can be consumed after the containers have been decontaminated. Discard unprotected food and water except in extreme emergencies. Decontaminate unprotected food and water only when there is no practical alternative. All disposed contaminated items must be marked and treated as NBC hazard.

8. Decontamination. Methods of decontaminating subsistence are described below. Dispose of foods that cannot be decontaminated according to local laws or military regulations. If food preparation equipment or food service personnel have been exposed to NBC agents they must be decontaminated. Personnel are decontaminated with the M258-series decontamination kit. Food service equipment should be decontaminated by power-driven decontamination equipment or by steam cleaners. A hot water and soapy wash must follow to insure all decontaminates are removed before food products can be prepared.

a. Nuclear. There are certain procedures to follow when food and water have been contaminated by radioactivity. Except in rare cases of induced radiation, rations in cans or other sealed containers are not in danger of radiological contamination. It will often be impossible to decontaminate meat, fish, etc., due to absorption of the radioactive salts found in fallout. Normally, the contamination will be limited to the outer surface. Decontaminate by removing the outer packaging or by washing or scrubbing the container under uncontaminated running water. Water runoff from decontamination operations must be captured and treated as a hazard. Food that is not protected in sealed containers must be suspected of contamination until it is checked. If the unit Commander determines that the food must be decontaminated, move all foods from the contaminated area to a clean area. Decontaminate potatoes and hard-skinned fruits and vegetables by washing or scrubbing them under uncontaminated running water and then peeling or scraping them and washing them again. Brush all visible dirt from meat and fish; washing is not recommended. A thin layer may be stripped from the surface of meat or fish. After the outer layer is removed from the food, check it with a radiac set. If the dose-rate reading has become lower, the contamination probably was confined to the surface of the food. Clean the knife and remove a second layer. The cutting away process may be continued, within reason, until the dose-rate reading is near that of the surrounding environment. Since prepared food in open containers probably will be contaminated, bury or dispose of it as determined by designated medial personnel. Dispose of radiologically contaminated wash water and trimmings the same way. Food

that has been contaminated by induced radiation probably will be made inedible by blast and fire damage. Any foods not destroyed yet contaminated by induced radiation can only be decontaminated by aging. Usually, this requires less than 14 days. Carefully monitoring these foods will determine the progress of radioactive decay during aging.

b. Biological. Decontaminate containers contaminated with toxins like those contaminated with chemical agents. Be sure to decontaminate the exposed threads of jars with screw caps before the caps are removed. Do not use water from unapproved sources for drinking or preparing food unless no other water is available. If water from unapproved sources must be used, disinfect it. Disinfecting water does not ensure that it is safe to drink. If the water is contaminated by toxin, disinfection will not work. Also, some pathogens cannot be destroyed by disinfection. Food contaminated by pathogens can be made safe by peeling or paring or heating.

(1) Peeling and Paring. Decontaminate potatoes and hard-skinned fruits that can be peeled or pared. First, disinfect the surface of the food by using disinfectant bleach. After disinfecting the surface, peel or pare, wash and cook the food thoroughly before serving. In general, most biological agents can be neutralized through cooking.

(2) Heating. Heat is the best way to decontaminate biologically contaminated food. Thorough cooking reduces contamination to a safe level. Decontaminate foods by one of the heat methods in the tables (8-1 and 8-2) below. The type of food and the amount of contamination determines which procedure should be used. Make sure that the heat completely penetrates the food for the time shown.

Method	Description
Cooking	Cook items in a pressure-type cooker (autoclave) at 15-lbs. pressure at 250 degrees Fahrenheit for 15 minutes or cook in a low-pressure cooker at 228 degrees F for one hour.
Baking	Bake items such as bread or related items in a preparatory stage for 40 minutes at 400 degrees F. Bake meat at 325 degrees F for about two hours.
Boiling	Boil certain items for at least 15 minutes as an expedient method when no other method is available.

Table 8-1. Heat methods of decontamination

Agent	Type of Food	Procedure
Irritant agent	Dry provisions.	Aerate.
*Mustard agent (vapor) or	Food having a high fat content (butter, lard, ham, cheese, bacon, fatty meat, and fish).	DO NOT USE. DISCARD.
*Nerve agent (vapor)	Other food.	Trim away fat and grossly contaminated areas. Wash food with water or a solution of 2% sodium bicarbonate. Then air for 48 hours.
*DO NOT attempt to decontaminate food that has been exposed to mustard or nerve agent in a liquid form.		

Table 8-2. Treatment of food tainted with toxic chemicals.

c. Chemical. Decontaminate food items that have been exposed to chemical agents as shown in table 8-2 above. FM 3-5 and Fm 8-10-7 provide more detailed guidance.

Discard food that is unprotected or poorly protected and that has been exposed to chemical agents unless no other food is available. Foods with a low water content and a high fat content, such as butter, lard, ham, cheese, bacon, fatty meat, and fish, absorb so much mustard and nerve agents that decontamination is impossible. Discard these items. Destroy food exposed to liquid agents (nerve and mustard) or arsenicals. In an emergency, you may decontaminate other food that has been exposed to chemical agents as described in table 8-2 above. Do not try to decontaminate water that has been exposed to chemical agents. Seek help from your supporting water supply point.

9. Summary. In this lesson you learned how to identify procedures for protecting subsistence from NBC attacks; decontaminating contaminated subsistence; and disposing of contaminated subsistence.

PRACTICE EXERCISE

The following items will test your grasp of the material covered in this lesson. There is only one correct answer for each item. When you complete the exercise, check your answer with the answer key that follows. If you answer any item incorrectly, study again that part of the lesson that contains the portion involved.

1. Dry provisions tainted with irritant agent should be:

   A. Discarded
   B. Filtered
   C. Aerated
   D. Rinsed

2. Another name for a radiac meter is:

   A. M256
   B. Geiger counter
   C. M272
   D. M43 Detector Unit

3. True or False: Disinfecting water ensures that it is safe to drink.

   A. True
   B. False

PRACTICE EXERCISE

ANSWER KEY

Item Number	Correct Response	Reference
1	C	Lesson 8, Table 1-2
2	B	Lesson 8, para 6.a.
3	B	Lesson 8, para 8.b.