

## 4-H Outdoor Meat Cookery

### Learning Activity: Outdoor Meat Cookery Equipment

**Learning Objective:** Youth will learn to select and use the basic equipment to safely cook using a charcoal grill.

**Life Skills:** Decision Making and Healthy Lifestyle Choices

**Background:** Grills come in many sizes and shapes. Grills can be simple or very fancy with many accessories. Select a grill that is sturdy and has a durable fire box. The thicker the metal for the fire box, the longer the grill will last. The size of the grill cooking surface depends on the need. For example, a small portable grill may be selected for picnics but a larger, maybe permanent, grill for use at home. Choose a grill that you can control the heat either by opening or closing vents or moving the cooking surface up or down. Also, some grills have a shield to reflect heat and prevent wind drafts; other grills have lids that will hold heat, prevents wind drafts and is useful for smoking meats. Personal clothing should be clean and neat and not present a safety concern (no loose fitting clothing and open toed shoes). People cooking should wear a head covering and use plastic gloves when serving food. Useful accessories include:

Table: portable table to place your utensils and prepare your food

Tongs: two, long handled tongs are needed – one for the meat and one to move charcoal

Apron: to keep yourself clean and for protection

Padded Mittens or Gloves: for handling hot food and equipment

Fork, Knife & Spatula: long handled to move or turn meat and stay a safe distance from fire

Skewers: for cooking kabobs; long with wooden handles are safer

Sprinkle Water Bottle: to douse flame-ups; spray bottles can cause ashes to fly

Basting Brush: to add sauces to meat surface

Small Pan: to keep sauces warm

Thermometer: to check meat internal doneness

Pliers: to grasp cooking grid to move off grill to add charcoal

Cooler: to safely transport food items

#### Activities:

1. Demonstrate various grills and accessories to use in outdoor meat cookery
2. Visit a store that sells grills and grilling supplies
3. Set up a grill accessory/equipment ID learning station

#### Materials Needed:

1. Various grill styles and grilling accessories

## 4-H Outdoor Meat Cookery

### Learning Activity: Safety While Grilling

**Learning Objective:** Youth will learn about fire, food and personal safety while grilling.

**Life Skill:** Healthy Lifestyle Choices

**Background:** Outdoor cooking and picnics can be fun. However, you must use good safety practices to prevent injury, property damage or food borne illness. Safety hazards can be grouped into location, fire and food safety. Locate your grill on a firm, level surface to prevent the grill from tipping over. Your grill should be away from wood siding, shrubs or any other material that can burn. Keep young children, pets and flammable materials away from your cooking. Do not place portable grills on tabletops that can burn. Never grill indoors, garages or areas that are not well ventilated. Charcoal briquettes produce carbon monoxide and cause illness or even death. Remember that utensils and grill tops and sides are very hot so use long handled utensils and protective mitts to prevent injury. Also, loose clothing and open toed shoes should not be worn. To cook, we must have heat and therefore we build a fire to start the charcoal or light a gas grill. Only use an approved charcoal starter – **never** use gasoline or kerosene to start the fire. **Never** put lighter fluid on a hot fire! Do not use aerosol cans around fires because many aerosol propellants are flammable. Never leave your hot grill unattended. Flare-ups in the grill and grease fires are also dangers. A spray bottle with water can usually control flare-ups. Coarse salt or baking soda can smother a grease fire. A fire extinguisher that is capable of controlling wood/paper and grease fires would be a good idea. After cooking, either douse the hot coals with water or close the vents on grill to smother fire. Make sure coals are cold before disposing of them. We can prevent food borne illness by remembering three control measures: keep food clean, keep food cold or keep food hot. Do not let raw meat juices contaminate other food items. Pack raw meat in sealed containers or bags and place in bottom of cooler. Bacteria that cause food borne illnesses thrive in temperatures 40-140°F. Therefore, keep meat cold below 40 °F or above 140 °F after cooking. Food should not be out of the cold for more than two hours. Wear a head covering and have water to wash hands to prevent contaminating the food.

#### Activities:

1. Have youth make a list potential outdoor cooking safety hazards.
2. Discuss their hazards and other hazards, emphasizing the preventative measures.
3. Demonstrate safe grilling techniques, proper use of utensils and preventative measures.

#### Materials Needed:

1. Paper and pencils.
2. Grilling equipment and utensils.
3. Fire extinguisher, water bottle, coarse salt and baking soda to extinguish fire

## 4-H Outdoor Meat Cookery

### Learning Activity: Building the Fire

**Learning Objective:** Youth will learn to safely start charcoal to provide the heat for grilling.

**Life Skill:** Healthy Lifestyle Choices

**Background:** You may want to line your grill with aluminum foil. This helps protect your grill and makes clean up much easier. If your grill does not have a grate for the charcoal, you may place dry sand or small gravel in bottom to help the fire “breathe’ and burn hotter. If your grill is rounded on the bottom, use the sand or gravel to level the fire base. If your grill has bottom vents, open them before starting the fire. Select a high quality charcoal. The better charcoal briquettes start easier and burn more uniformly. To determine the number of charcoal briquettes, spread briquettes 1 to 2 inches beyond the area the meat will cover on the cooking rack. Start your charcoals by one of the following methods: liquid starter, chimney starter or ready to light charcoal.

Liquid Starter: Arrange the charcoal in a pyramid shape on the charcoal or fire grate. Add the liquid starter according to manufacturer’s directions and wait at least one minute before lighting. Use a long stem match or long stem butane lighter to start the fuel.

Chimney Starter: You can purchase a chimney starter or make one by punching or drilling holes around a large can. Place newspaper in bottom of chimney starter and add charcoal to top. Liquid starter may be added to briquettes. Light newspaper through a bottom hole.

Ready to Light Charcoal: These briquettes are pre-soaked with lighter fluid. Arrange in pyramid shape and light.

**Warning:** Never use gasoline or kerosene to start fires, never add starter to hot coals and never grill indoors!

Regardless of the starting method, allow all liquid starter fluids time to completely burn off so that the fuel will not impart an “off-flavor” to the meat. Also, paraffin or gel starter blocks can be substituted for the liquid starter fluid when starting charcoal. Electric charcoal starters are available for purchase. Coals will be ash-covered (white) in about 30 minutes. Then, evenly spread a single layer of coals over the fire grate. Most meat cuts are prepared over medium heat coals. The coals will glow through a thin ash cover or you can hold your hand four inches over the coals for about six-eight seconds.

#### Activities:

- 1 Make a chimney starter from a large can.
- 2 Demonstrate proper charcoal starting techniques for each method.
- 3 Determine the approximate coal temperature. (2-3 seconds hand count = hot coals; 6-8 seconds hand count = medium coals; 11-14 seconds hand count = low coals)
- 4 Demonstrate paraffin, gel or electric starters

#### Materials Needed:

1. Large can, drill or pointed beverage opener
2. Grill, charcoal, starter fluid, matches or lighter, newspaper and tongs
3. Paraffin, gel or electric starters

## 4-H Outdoor Meat Cookery

### Learning Activity: Selecting Meat Cuts for Grilling

**Learning Objective:** Youth will learn to select beef, lamb or pork cuts that are suitable for grilling.

**Life Skill:** Decision Making

**Background:** Meat palatability is a combination of flavor, juiciness and tenderness. Improper cookery can adversely affect meat palatability. Selecting tender cuts is the first step in preparing tender meat. Grilling is a type of dry heat cookery method called broiling. To cook by broiling, the meat is placed 2-6 inches from the heat. Broiling is suitable for more tender cuts of beef, lamb and pork. Cuts from the rib and loin wholesale cuts contain less connective tissue and are more tender when cooked rapidly at higher temperatures. Less tender cuts may be grilled when marinated. Marinating (solution of seasonings) will impart flavor and tenderize to a small degree. Cuts for grilling generally should be at least  $\frac{3}{4}$  - 1 inch in thickness. Thicker cuts can be grilled if placed further away from the heat (6 inches +) and for longer times. In addition to cut location, select meat cuts that have a firm and fine textured lean. Cuts for grilling should have an adequate degree of marbling (USDA Select or better for beef) for flavor and juiciness.

**Beef Cuts:** Rib, Rib Eye, T-Bone, Porterhouse, Top Loin, Tenderloin and Top Sirloin Steaks and Ground Beef Patties

**Lamb Cuts:** Arm, Blade, Rib, Loin and Sirloin Chops; Leg Slice, Butterflied Leg; Kabobs and Ground Lamb Patties

**Pork Cuts:** Blade Steaks; Blade, Rib, Loin, Butterfly, Top Loin and Sirloin Chops; Tenderloin; Country-Style Ribs, Back Ribs and Spareribs; Ground Pork Patties and Kabobs; Cured and Smoked Ham Slice, Rib and Loin Chops

#### Activities:

1. Grill a tender cut (rib or loin cut) and a less tender cut (bottom round steak, cross cut shank, arm steak) and compare the tenderness.
2. Select a less tender cut (top round, flank steak, eye round steak). Marinate one-half of cut over night and grill both pieces. Did marinating improve tenderness and flavor?
3. Visit a meat market and identify the cuts that are suitable for grilling.
4. Check the USDA quality grade sold at your meat market.

#### Materials Needed:

1. Grill, charcoal, starter fluid, matches or lighter, tender cut and less tender meat cuts
2. Grill, charcoal, starter fluid, matches or lighter, less tender meat cut and marinade.

## 4-H Outdoor Meat Cookery

Learning Activity: Enhancing Flavor with Rubs, Mops (Sauces), Marinades and Smoke

**Learning Objective:** Youth will learn methods of seasoning meats to enhance the natural meat flavor.

**Life Skill:** Decision Making

**Background:** Meat palatability is a combination of flavor, juiciness and tenderness. Other learning activities have demonstrated factors affecting tenderness and juiciness; this activity will address the flavor of grilled meat. The most familiar type of grilled and flavored meat is barbecue. The addition of spices and seasonings can be applied through rubs, mops or sauces or marinades. Depending on the desired flavor intensity, these flavorings can be added prior to cooking, during cooking (basting) or added at serving. Remember that sugar and tomato based sauces burn and blacken very easily.

Rubs: Rubs are a combination of dried spices that are rubbed into the meat prior to cooking. Apply to the meat surface and rub and place in closed plastic bag and place in refrigerator for 2-24 hours. Usually contains salt, pepper, sugar and spices.

Marinades: Marinades are liquid flavoring agents. Marinades usually contain acids (vinegar, milk, yogurt, lemon or other fruit juices), vegetable oil and spices. Although marinades are used for flavor enhancement, the acids can tenderize meat to a very limited extent. Meat is usually marinated for 2-24 hours in the refrigerator. Marinate meats in plastic, glass or stainless steel containers; aluminum containers can react with the acids. If you plan to use the marinade for basting, vigorously boil the marinade to kill bacteria.

Mops or Sauces: Mops and sauces are applied to the meat surface during cooking to help keep the meat moist as well as flavor. Butter or vegetable oil, vinegar, lemon juice, commercial sauces (such as Worcestershire, Teriyaki) and seasonings are common ingredients.

Smoking meats is another technique for enhancing flavor. Typically, water soaked (for at least 30 minutes) hardwood chips, chunks or sawdust are placed over the heat to generate the smoke. Popular smoking woods are hickory and mesquite but oak, maple, pecan, apple and cherry are also used. Softwoods like pine produce a bad tasting smoke. There are liquid smokes that you can add as an ingredient to sauces and marinades.

### Activities:

1. Make a dry rub using the recipe below:

Rub Recipe:

$\frac{3}{4}$  Cup paprika

$\frac{1}{4}$  Cup ground black pepper

2 Tablespoons chili powder

2 Tablespoons garlic powder

¼ Cup salt  
¼ Cup sugar

2 Tablespoons onion powder  
2 Tablespoons cayenne

Thoroughly mix and store in covered container

From *Smoke and Spice* by Cheryl Alters Jamison and Bill Jamison

2. Collect some of the common spices, herbs and seasonings use to flavor meat. Describe the appearance and taste of each; then try to identify each by sight and taste.
3. Compare meat prepared by applying a dry rub, marinade and/or sauce to that without flavorings.
4. Collect different types of smoking woods. Place an aluminum foil pouch of moist wood chips and heat each, use fork to poke holes in foil. Can identify the woods by their smoke. (Best done on grill with cover to catch and concentrate smoke)
5. Prepare meat with and without smoke. Can you taste the difference? Is the color the same?

**Materials Needed:**

1. Seasonings
2. Spices and seasonings, small containers, paper & pencils to write down descriptions
3. Steak or chop, meat rub, marinade and sauce, plastic locking bag
4. Samples of smoking woods, covered grill, charcoal & starter
5. Wood chips, grill and accessories, meat

# **GUIDELINES**

## **4-H Outdoor Meat Cookery**

**Purpose: to promote the use of meat products in the diet by teaching the art and science of safely preparing beef, lamb, pork and poultry in an outdoor setting**

Life Skills: Decision Making, Healthy Lifestyle Choices, Teamwork

1. An Outdoor Meat Cookery team will consist of four members. A team will have an individual in each of the four divisions: beef, lamb, pork and poultry. Individual specie winners from regional contests, not on state qualifying teams, will be eligible to cook at the State Outdoor Meat Contest for individual awards.
2. The contestants will be scored by judges according to the 4-H Outdoor Meat Cookery score sheet.
3. Each contestant will provide two (2) fresh, uncooked, meat items; one for the team meat platter and the other for sampling. The retail cut is the participant's choice; however, the cut must be prepared within the time limit. The poultry item may be either chicken or turkey. The cut can be marinated prior to the contest. Contestants should be prepared to state a degree of doneness (rare, medium rare, medium, medium well or well done) for beef, lamb and pork cuts.
4. Preparation and cooking time limit is two (2) hours. The contestants are required to turn in the prepared meat at the end of the stated cooking time. Contestants will submit only the prepared meat cut to the judges; that is, no additional items (drink, vegetables, etc.) should be submitted to the judges.
5. The contestant should provide a copy of any recipes used to the judges. Sauces and marinades may be commercial or personal recipe.
6. Barbecue grills, charcoal, starters, grilling supplies and table set-ups must be provided by the contestants. Grills with or without hoods may be used. Also, aluminum foil may be used to construct a windscreen or hood.
7. Contestants will work alone, except for setting up the cooking area and preparing the meat platter for presentation. In case of an emergency, as determined by contest monitors, team members may be allowed to share cooking space.

## Interpretation of Outdoor Meat Cookery Scorecard

### Team Presentation – 50 points

Team will select a theme of their choice such as tailgating, luau, barbecue or birthday party. Team will prepare a meat platter and a table display to present to judges with a beef, lamb, pork and poultry cut. Table display should illustrate theme and be card table size (not more than 48 inches square or circular). Twenty points (20) will be allocated to development of the theme through recipe selection and compatibility. Thirty points (30) will be given for platter presentation. Style, color and attractiveness of presenting the meat cuts will be the major criteria.

### Appearance of Contestant – 5 points

Contestant is neat and clean. Person should have apron and head cover.

### Equipment and Utensil Use and Safety – 15 points

Appropriate equipment and utensils are selected and used efficiently, safely and effectively. Are utensils clean and no cross contamination possible? Fire is efficiently and safely prepared. Is the appropriate amount of charcoal used? Is work area safe? Is meat properly stored and handled?

### Imagination and Recipe – 10 points

Contestant applies novel idea in preparing cut, choice of spices, seasonings and/or sauces. Seasonings compliment meat and contribute to theme.

### Meat Preparation Skills – 15 points

Was the fire controlled (fire not too hot or cold)? Was extra charcoal added at proper time? Was sauce applied appropriately? Were good food safety principles used in handling product?

### Palatability – 35 points

Flavor (15 points): Flavor is appealing and contributes to theme. Sauces/seasonings compliments meat flavor but does not mask meat flavor. Should have no off flavors.

Juiciness (10 points): Meat is juicy and not wet or dry.

Tenderness/Texture (10 points): Meat should be tender but not rubbery or shatter upon chewing.

### Attractiveness and Overall Acceptability of Final Product – 20 points

External surface has a uniform color without undercooked or overcooked areas. Surface is not burned and dried out and free of ash. Internal doneness should be the degree specified. Internal appearance should be typical of specified degree of doneness without surfaces being overcooked. Appearance and palatability factors blend to make an appealing product.

### Total Score:

Team Platter/Table Presentation:	= 50 points
Individual Cooking: (100 points) X 4 individuals	= <u>400 points</u>
Total Team Points Possible	= 450 points

Individual specie awards will be based only upon the 100 points.