



# AGsploration

The Science of Maryland Agriculture

UNIVERSITY OF  
**MARYLAND**  
EXTENSION  
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## Burgers, Chops and Steaks: Looking at Beef, Pork and Lamb



### STATE SCIENCE STANDARDS:

6th, 7th, and 8th Grade Skills and Processes:

- 1.0.C.1.b Interpret tables and graphs produced by others and describe in words the relationships they show.
- 1.0.C.1.f Participate in group discussions on scientific topics by restating or summarizing accurately what others have said, asking for clarification or elaboration, and expressing alternative positions.

6th Grade Health:

- 6.0.B.2 Discuss ways to prevent food borne illness.

7th Grade Health:

- 6.0.1 Explain the role of nutrients.
- 6.0.I.1 Apply the Dietary Guidelines for Americans in meal planning.

Core Learning Goal:

- 6.3.4 The student will evaluate the interrelationship between humans and biological resources.

### GOAL STATEMENT:

Students will learn about the types of beef, pork and lamb meat cuts and products and the role that these important agriculture commodities plays in one's diet and in Maryland's economy.

### OBJECTIVES:

- Students will learn the importance that livestock animals and meat products play in Maryland's economy.
- Students will name major products we get from beef, pork and lamb carcasses and how they fit into people's diets.
- Students will name some of the nutrients people get from eating meat and a use for each in the human body.
- Students will learn selection criteria, safe handling and proper cookery methods for beef, pork and lamb cuts.
- Students will collect, explore and analyze Maryland Agricultural Census data and Consumer data about Beef, Pork and Lamb production and consumption.

### REQUIRED MATERIALS:

- "Beef Cuts Made Easy" (Cattleman's Beef Board and National Cattlemen's Beef Association)
- "Retail Cuts of Pork" (National Livestock and Meat Board)
- "Retail Cuts of Lamb" (National Livestock and Meat Board)
- "A Daily Record of My Beef, Pork and Lamb Consumption" worksheet (1 per student)
- "A Weekly Record of My Beef, Pork and Lamb Consumption" worksheet (1 per student)
- Poster board or chart paper/chart markers

### AMOUNT OF TIME TO ALLOW:

Approximately 60-75 minutes. Extension activities will take additional time.



*It is the policy of the University of Maryland Extension that no person shall be subjected to discrimination on the grounds of race, color, sex, religion, disability, age or national origin.*



**\*Teacher's Note – Realize that not all people consume meat products in their diets for various health, religious, political, environmental, cultural, ethical, aesthetic or economic reasons. However, livestock is an important part of agriculture. Students who do not eat beef, pork or lamb may still enjoy learning from the activities in the engagement section.**

Maryland ranks 34th in the nation for their value of livestock, poultry and animal products. In 2007, the market value of livestock, poultry and their products sold by Maryland farmers was \$1.2 billion. Each year Maryland farmers sell about 90,000 cattle, 123,000 hogs and 12,000 sheep. Most of the cattle, hogs and sheep are sold for meat. (To see the current number and economic value of livestock sold by Maryland farmers consult the Agriculture Census data for Maryland available from the National Agricultural Statistics Service of the United States Department of Agriculture.)

Meat is the muscle and fat (and sometimes bone) from a livestock animal which has been raised and processed for food as part of our diets. This is referred to as “harvesting” the animal. Many people eat meat because it provides important nutrients for our bodies and we like the taste. Some of the more common meats we eat in America are chicken, beef, pork, lamb, turkey and goat. Many people also eat fish and other types of seafood. However, for this lesson we will focus on learning more about **beef, pork and lamb**.

Begin by writing Beef (Cow), Pork (Swine), and Lamb (Sheep) on the board. Ask students to provide names of meat products they eat and which animal they think it comes from. Record the students' ideas on the board to create a list under each heading. (i.e. bacon is pork and comes from a pig/hog, hamburger is beef and comes from cattle/cow.)

Ask students to identify their favorite their favorite beef, pork or lamb meat cuts or products. For added conversation, students could discuss topics such as: Why they like their favorite cut or product. How they like it prepared? Do they use condiments or sauces? How often they eat it?

Share the following introductory information about Beef, Pork and Lamb with the students:

## Beef

Meat that comes from cattle is called beef. Some of the common beef meat cuts or products that you may know already are steaks, roasts and hamburgers. Cattle that are grown for meat typically take about 14-18 months after being born to grow to market weight. Market weight is the weight of a livestock animal when it is large enough to harvest for meat. The market weight for beef animals is 1,000 to 1,300 pounds. A 1,000 pound beef animal will yield about 600 pounds of meat to be cut up by the meat packer or butcher.

### Beef Facts:

- Beef is the No.1 selling protein in the United States. In 2010, consumer spending on beef totaled \$74.3 billion.
- According to the industry research firm CattleFax, the average American's consumption of beef in 2010 was 59.6 pounds while per capita spending for beef was \$240.

## Pork

Meat that comes from pigs (also called hogs or swine) is called pork. Some of the common pork meat cuts or products that you may know already are pork chops, spare ribs, bacon, sausage and ham. Pigs that are grown for meat typically take about 5-6 months after being born to grow to market weight. The market weight for a market pig is 230 to 270 pounds. A 250 pound pig will yield about 175 pounds of meat to be cut up by the meat packer or butcher.

### Pork Facts:

- Pork consumption has remained fairly stable over the last two decades according to USDA data. Annual per capita pork consumption reached a high of 60.5 pounds in 1971 and a low of 42.9 pounds in 1975. In 2007, per capita consumption was 50.5 pounds. (American Meat Institute, 2007.)
- Most Americans don't realize that many pork cuts are as lean as skinless chicken and are a great source of high-quality protein.

### Lamb

Meat that comes from sheep is called lamb. Some of the common lamb meat cuts or products that you may know already are lamb kabobs, leg of lamb, crown roasts or racks. Sheep that are grown for meat typically take about 5-6 months after being born to grow to market weight. The market weight for lambs is 100 to 140 pounds. A 100 pound lamb animal will yield about 50 pounds of meat to be cut up by the meat packer or butcher. Meat that is harvested from a sheep that is one year of age or older is called mutton and it is not as desirable to most people as lamb.

### Lamb Facts:

- A 3-ounce serving of lamb provides 43 percent of an adult male's recommended daily allowance (RDA) of protein.
- Lamb consumption in the U.S. is small relative to other meat products. Americans consumed just 1.1 pounds per capita of lamb and mutton in 2007. (American Meat Institute, 2007.)

## Exploration

25 minutes



### Part 1: (15 minutes)

#### Directions:

1. Divide students into groups of 2-4.
2. Once in the small groups, ask the students to choose one of the three types of meat we are learning about: beef, pork, or lamb.
3. Ask each student to share within their group their favorite meat cut or product from that type and record their answers on a group poster board or chart paper. (i.e. beef groups might identify: hamburger, ribeye steak, beef jerky; pork groups might identify: pork chop, bacon, ham; etc.)
4. Now, have the students look at the "Beef Cuts Made Easy", "Retail Cuts of Pork", or "Retail Cuts of Lamb" handouts to find their favorite cuts of meat and identify which parts of the meat animal (carcasses) their favorite cuts come from. Have the groups look at the handout that corresponds to the type of meat they are exploring: for example, groups discussing beef will use the "Beef Cuts Made Easy" handout.
5. Have each group draw an outline of their group's meat animal on their poster. Then draw a line connecting each of their favorite cuts to the part of the meat animal each cut comes from.

### Part 2: (10 minutes)

#### Directions:

1. Next, ask the students to remember the meat and meat products they had to eat **yesterday**, (or another recent day).
2. Have students chart out the meat they had to eat using the "A Daily Record of My Beef, Pork and Lamb Consumption" worksheet.
3. Ask students to share what they recorded on their worksheet.





Choose one of the activities below to complete with your students:

**Activity 1. Factors Used for Selecting Meat Products** — Ask students to discuss the factors that influence their decisions on which meat cuts or products they purchase and eat. Use the information below as a resource to help with the discussion.

### Factors Used to Purchase Meat

People make their decisions to buy meat at the grocery store or their favorite restaurant based on a variety of factors. These factors include the nutritional value of the meat cut (see Activity 2 below); the cost of the cut or products; the convenience of storage, preparation and serving of the meat; safety and wholesomeness of the meat; and of course their taste preference.

### Desirability of Meat Cuts

There are many different things that influence the desirability of fresh meat cuts for people including leanness, color, tenderness and flavor.

When selecting fresh meat cuts, consumers typically do not want to buy cuts that have a lot of external fat covering or a lot of bone. These are items that we would not usually eat, so we would just trim these away and discard them. Therefore, the leanness of the cut can help in selecting meat cuts. Color also affects our selection. Fresh cuts of beef are ideally bright cherry-red in color. Fresh cuts of lamb are ideally pinkish-red. And fresh cuts of pork are light grayish-pink. The color of the meat will usually change when cuts lose their freshness, are cured or processed and are cooked.

Knowing the portion of the beef, pork and lamb carcass that the cut comes from can help people make decisions about which cuts to buy. Carcasses are divided into parts called primals. Each primal contains several different retail cuts of meat that are similar in muscle and bone type. Muscles in certain primal regions such as the rib and loin are mostly used by the animal to support its skeleton. These are called suspension muscles and they are usually more tender. Muscles in other primals, such as the shoulder, chuck, round, leg, neck and shanks have the role of moving the animal around; they are called locomotion muscles and they contain more connective tissue in the form of ligaments and tendons and are usually less tender. Cuts that are more tender that come from the rib and loin region usually cost more at the grocery store and restaurants because they are more desirable.

The “Beef Cuts Made Easy”, “Retail Cuts of Pork”, or “Retail Cuts of Lamb” handouts can be used to help identify which primal from the beef, pork, or lamb carcass different retail cuts of meat come from.

**Activity 2. Nutritional Value of Beef , Pork and Lamb** — Discuss the different nutrients people get from eating beef, pork and lamb and the importance of each nutrient for maintaining a healthy body. Use the following information to help lead the discussion.

### Nutritional Value

Producers and processors are now offering meat and meat products that contain less fat and are more nutritious than ever. One of the reasons people eat meat is because it provides important nutrients for our bodies. Meat is a protein food that contributes B vitamins (e.g., niacin, thiamin, riboflavin, and B6), vitamin E, iron, zinc, and magnesium to the diet (Dietary Guidelines for Americans for 2010). Protein is needed for growth and repair and supplies energy. B Vitamins help the

nervous system, vision, and appetite. Iron helps cells generate energy. Zinc supports the work of protein for growth and development; helps in building the immune system, healing wounds, and providing normal taste function. Meat is not the only food in our diet because it does not provide all of the important nutrients our bodies need to stay healthy. We must eat other types of foods too, like grains, fruits, vegetables and dairy foods to give us a balanced diet.

**Activity 3. Cookery Methods and Meat Handling Safety** — Discuss why is it important to handle and cook meat products safely. Discuss the different methods to preparing beef, pork and lamb. Discuss the advantages and disadvantages for each method. Ask students to identify which cookery method is their favorite. Use the following information to help lead the discussion.

### Keeping Meat Safe

There are many steps that are taken to provide safe meat products for consumers. The different segments of the meat industry from growing, harvesting, processing, distributing and preparation for consumption all develop and follow a USDA approved Hazard Analysis and Critical Control Plan (HACCP) to help them protect meat from different biological, physical and chemical hazards that would make meat unsafe for consumption. Hazards that can make meat unsafe to eat include bacteria and viruses; parasites; molds, toxins and contaminant; and allergens. They can cause foodborne illness and allergic reactions.

Meat safety all begins with producers raising livestock animals under safe conditions and caring for their animals following recommended good production practices. Federal inspectors at packing and processing plants check facilities for cleanliness and check every animal before it is harvested and processed for consumers to eat. Retailers and distributors keep fresh meat refrigerated or frozen until it is delivered to stores and restaurants for consumers to buy. Some meat products are processed to be stored in other ways and do not need refrigeration; one example would be jerky. Finally, consumers should always read the meat's label to be sure that they are handling, storing and cooking it properly.

Some important things you must follow to keep meat safe include:

- Keep refrigerated or frozen – refrigerate at temperatures less than 40 degrees Fahrenheit.
- Thaw in a refrigerator or microwave – do not thaw frozen meat at room temperature.
- Keep raw meat separate from other foods. Wash all surfaces, utensils and hands before and after touching raw meat. If handling raw meat from multiple species, handle raw pork last, after handling raw beef and lamb.
- Cook thoroughly – follow the USDA Meat and Poultry Guidelines for minimum internal temperatures when cooking. Refer to the Is it Done Yet? handout for proper cooking temperatures.
- Keep hot foods hot – greater than 140 degrees Fahrenheit.
- Refrigerate leftovers immediately.

### Methods of Preparing Meat

People cook meat to improve the way it tastes and looks and also to kill off harmful bacteria like E.coli and Salmonella that can cause foodborne illness. The method we choose to prepare meat has a major impact on its tenderness, juiciness and flavor. The two types of methods to prepare meat include Dry Heat and Moist Heat:

- Dry Heat Preparation Methods – Use for cuts that are more tender with little connective tissue. These methods use direct or indirect heat without adding moisture during cooking. They use high heat and short cooking times.
  - ◆ Includes: Baking, Broiling, Grilling, and Pan-Broiling
  - ◆ Use for cuts that come from the rib, loin, leg or round.

- Moist Heat Preparation Methods - Use for cuts that are tougher and have more connective tissue. They use indirect heat and the addition of a liquid or retained moisture during cooking. These cooking methods typically use lower heat and long cooking times.
  - ◆ Includes Frying, Braising, and Cooking in Liquid
  - ◆ Use for cuts that come from the shoulder, chuck, shank, neck or brisket.

## Extension



Here are some additional activities to help students learn more about meat and meat products.

Foods are often associated with special events or holidays. Ask students to discuss the association of meat with different events they enjoy and holidays they celebrate. For example, people like to eat hotdogs at the ballpark or corned beef on St. Patrick's Day.

Utilizing the internet, have each group create a PowerPoint presentation about the different nutrients people get from eating beef, pork and lamb and how each nutrient works in our bodies to help us grow and stay healthy.

Make a list of the benefits people get from eating beef, pork or lamb products and use this list to make a commercial to sell meat to consumers. Determine what is most important to consumers (things such as nutrition, flavor, tenderness, convenience, support of Maryland farmers and businesses, social aspects, etc.) to help you.

Keep a record of the meat products from beef, pork or lamb that your family eats in a one-week period using the "A Weekly Record of My Beef, Pork and Lamb Consumption" worksheet. Visit a grocery store or local restaurant and find all the meat products your family ate in that week and determine the total cost for your family to have meat in your diet for that week. Compare the cost of your favorite steak or other cuts of meat at the grocery store versus at your favorite restaurant.

Have an adult help you prepare your favorite meat cut, experimenting with different seasonings or sauces, and have your family do a "blind-folded" taste test to see which they like the best.

Have an adult help students separate a pork shoulder blade chop into muscle, fat and bone. Weigh the lean muscle, the fat, and the bone. Determine what percentage of the cut is comprised by each and then how much it costs to buy the fat and bone that is typically discarded. Create a pie chart showing the different percentage of lean muscle, fat and bone. Try the same activity with a beef T-bone steak or a beef chuck arm roast and compare results of different cuts.

Have an adult help students pan-broil one pound of ground beef. Separate and weigh the cooked meat and the grease (fat and other fluids). Determine what percentage of each is in the pound of uncooked ground beef. Repeat the activity with one pound of ground pork or pork sausage and one pound of ground lamb and compare the results with those from cooking one pound of ground beef.

Research and chart out the top 5 agriculture products produced in Maryland. Find Maryland's rank among all states in production of beef, pork and lamb. Determine which of Maryland's agricultural regions raise the most beef, swine, and lambs.





There are many careers related to the science and business of providing wholesome, nutritious, quality, and convenient meats and meat products to consumers. Opportunities in the meat industry involve all the sciences and is one of the fastest changing of the food industries. Many fields of study can lead to careers in the meat industry including microbiology, chemistry, biochemistry, engineering, sales, management, and marketing. Today, the emphasis being placed food safety is creating many new jobs in this industry. Careers can be found in several segments of the meat industry including, production, fresh meats, manufacturing or processing, and industry support.

**Production** – Includes raising livestock animals to be used for meat and meat products. Example jobs include:

- **Production Manager** – This person oversees the daily operations of a livestock farm that raises animals for meat.
- **Marketing and Sales** – This person secures buyers for live animals at the best possible prices.
- **Quality Assurance** – This person makes sure that the safest possible livestock production practices are used to raise animals for meat.

**Fresh meats** – Includes the harvesting and processing fresh meat. Example jobs include:

- **Harvest and Fresh Meat Processor** – This person is responsible for cutting large carcasses into smaller cuts of meat like steaks, chops, roasts and hamburger for grocers, restaurants and consumers.
- **Carcass Grader** – This person performs an evaluation of the meat characteristics of beef, pork, and lamb that affect the meat products consumers like most and are willing to buy.
- **Food Safety Inspector** – This person is a federal inspector that makes sure only that only safe animals are used for meat and that they are processed in clean, safe facilities.

**Manufacture** – Includes manufacture of processed meat products like beef jerky, smoked hams, pepperoni, bacon, bologna and much more. Example jobs include:

- **New Product Developer** – This person works to find safer ways to freeze, dehydrate, cook, and store meat products or applies new technologies to create new convenient ways for consumers to transport, serve, store or prepare meat products.
- **Food Scientist** – This is a scientist who creates new recipes for lunch meats, hams, bratwursts and much more or improve the nutritional value of meat products.

**Support Industry** – Includes equipment, ingredients, chemicals, packaging materials and services. Example jobs include:

- **Food Service Workers and Retailers** – This person might be running a meat department at a grocery store or working as a chef or manager at your favorite restaurant.
- **Research and Consulting** – This person studies meat industry problems in processing, production, storage, and preparation of meat and meat products
- **Engineer** – This person designs equipment that processes or packages meat and meat products and might also design meat processing or manufacturing plants.

# Evaluation



A pre/post test should be completed with this lesson plan. Student understanding of concepts can also be evaluated through class discussion as well as through evaluation of completed activity data sheets. Analysis/conclusion questions that are answered incorrectly by a large number of students should be addressed in a follow-up discussion.

# References



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# A Daily Record of My Beef, Pork and Lamb Consumption



Name: \_\_\_\_\_

Date: \_\_\_\_\_ Period: \_\_\_\_\_

Record all of the beef, pork or lamb cuts or products you ate yesterday (or another day suggested by your teacher) in the chart below. For each item record how much of each item you ate measured in ounces before cooking.

Meal/Snack	Beef, Pork or Lamb Item	How Much I Ate (measured in ounces before cooking)
Breakfast		
Morning Snack		
Lunch		
Afternoon Snack		
Dinner		
Evening Snack		

**My Daily Summary:** (fill in the blanks)

I ate beef, pork or lamb products for (how many) \_\_\_\_\_ meals/snacks yesterday.

I ate (how many) \_\_\_\_\_ servings of beef, pork or lamb products yesterday.

When comparing beef, pork and lamb, (which one) \_\_\_\_\_ is my favorite.

If you did not eat any beef, pork or lamb, list other types of meats or protein foods you ate below:

\_\_\_\_\_



# A Weekly Record of My Beef, Pork and Lamb Consumption



Name: \_\_\_\_\_

Date: \_\_\_\_\_ Period: \_\_\_\_\_

Record all of the beef, pork or lamb meat or meat products you eat during a one-week period in the chart below. Record how much of each item was eaten measured in ounces before cooking. (If you do not eat beef, pork or lamb you may use the chart to record other types of meat products or protein products you eat.)

Day of the Week	Breakfast		Lunch		Dinner	
	Meat Item	How Much I Ate	Meat Item	How Much I Ate	Meat Item	How Much I Ate
Sunday						
Monday						
Tuesday						
Wednesday						
Thursday						
Friday						
Saturday						

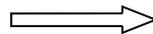
### My Weekly Summary:

I ate beef, pork or lamb products for (how many) \_\_\_\_\_ meals during this week.

I ate (how many) \_\_\_\_\_ servings of beef, pork or lamb products during this week.

The rank of my consumption of **beef, pork and lamb** based on the number of servings I ate during this week:

\_\_\_\_\_ Highest Consumption

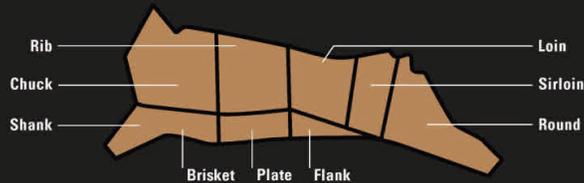


\_\_\_\_\_ Lowest Consumption



# Beef Made Easy®

Retail Beef Cuts and Recommended Cooking Methods



IT'S WHAT'S FOR DINNER.®

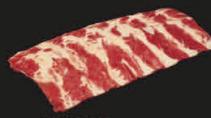


FUNDED BY THE BEEF CHECKOFF

## Chuck

 CHUCK 7-BONE POT ROAST 	 CHUCK POT ROAST Boneless 	 CHUCK STEAK Boneless  	 CHUCK EYE STEAK Boneless  	 SHOULDER TOP BLADE STEAK  	 SHOULDER TOP BLADE STEAK Flat Iron  
 SHOULDER POT ROAST * Boneless 	 SHOULDER STEAK * Boneless  	 SHOULDER CENTER * Ranch Steak 	 SHOULDER PETITE TENDER *  	 SHOULDER PETITE TENDER MEDALLIONS *  	 BONELESS SHORT RIBS  

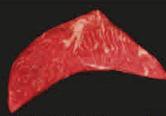
## Rib

 RIB ROAST 	 RIB STEAK 	 RIBEYE ROAST Boneless 	 RIBEYE STEAK Boneless  	 BACK RIBS 
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## Loin

 PORTERHOUSE STEAK  	 T-BONE STEAK *  	 TOP LOIN STEAK * Bone-in  	 TOP LOIN STEAK * Boneless  	 TENDERLOIN ROAST * 	 TENDERLOIN STEAK *  
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## Sirloin

 TRI-TIP ROAST *  	 TRI-TIP STEAK *  	 TOP SIRLOIN STEAK * Boneless 
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## Round

 TOP ROUND STEAK *  	 BOTTOM ROUND ROAST * 	 BOTTOM ROUND STEAK * Western Griller  	 EYE ROUND ROAST * 	 EYE ROUND STEAK *  
 ROUND TIP ROAST * 	 ROUND TIP STEAK *  	 SIRLOIN TIP CENTER ROAST * 	 SIRLOIN TIP CENTER STEAK *  	 SIRLOIN TIP SIDE STEAK *  

## Shank and Brisket

 SHANK CROSS CUT * 	 BRISKET FLAT CUT * 
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## Plate and Flank

 SKIRT STEAK 	 FLANK STEAK * 
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## Other

 GROUND BEEF  	 CUBED STEAK 	 BEEF FOR STEW 	 BEEF FOR KABOBS 	 BEEF FOR STIR-FRY OR FAJITAS 
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### Key to Recommended Cooking Methods

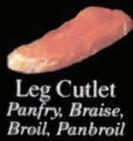
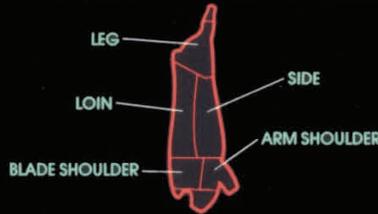
-  Skillet
-  Grill or Broil
-  Marinate & Grill or Broil
-  Stir-Fry
-  Roast
-  Stew
-  Braise
-  Pot Roast

\* These cuts meet government guidelines for "lean" and are based on cooked servings with visible fat trimmed.

Lean is defined as less than 10 grams of total fat, 4.5 grams of saturated fat, and less than 95 milligrams of cholesterol per serving and per 100 grams (3.5 oz).

# Pork

• RETAIL CUTS •  
WHERE THEY COME FROM  
HOW TO COOK THEM



**Leg Cutlet**  
Panfry, Braise,  
Broil, Panbroil



**Top Leg (Inside) Roast**  
Roast, Braise



**Smoked Ham**  
Roast



**Smoked Ham Shank Portion**  
Roast



**Smoked Ham Center Slice**  
Broil, Panbroil,  
Panfry, Roast



**Smoked Ham Rump Portion**  
Roast



**Canned Ham**  
Roast



**Boneless Smoked Ham**  
Roast

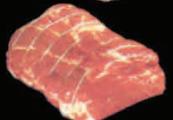


**Sliced Ham**  
Panfry, Panbroil,  
Braise

## LEG/HAM



**Blade Roast**  
Roast, Braise



**Blade Steak**  
Braise, Broil,  
Panbroil, Panfry

**Boneless Blade Roast**  
Roast, Braise



**Smoked Shoulder Roll**  
Roast, Cook in Liquid

**Boneless Arm Picnic Roast**  
Roast, Braise



**Smoked Picnic**  
Roast, Cook in Liquid

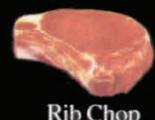


**Smoked Hocks**  
Braise, Cook in Liquid

## SHOULDER



**Blade Chop**  
Braise, Broil, Panbroil,  
Panfry



**Rib Chop**  
Broil, Panbroil,  
Panfry, Braise



**Top Loin Chop**  
Broil, Panbroil, Panfry,  
Braise



**Loin Chop**  
Broil, Panbroil,  
Panfry, Braise



**Sirloin Chop**  
Braise



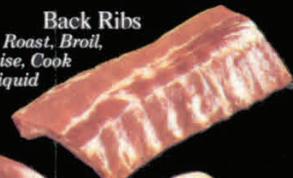
**Butterfly Chop**  
Broil, Panbroil,  
Panfry, Braise



**Country-Style Ribs**  
Roast, Braise, Broil,  
Cook in Liquid



**Sirloin Cutlet**  
Braise, Broil, Panbroil,  
Panfry



**Back Ribs**  
Roast, Broil,  
Braise, Cook in Liquid



**Center Rib Roast**  
Roast



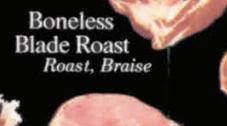
**Tenderloin**  
Roast, Braise,  
(Slices: Panfry, Braise)



**Top Loin Roast (Double)**  
Roast



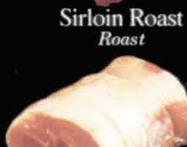
**Blade Roast**  
Roast, Braise



**Boneless Blade Roast**  
Roast, Braise



**Center Loin Roast**  
Roast



**Sirloin Roast**  
Roast



**Crown Roast**  
Roast



**Smoked Loin Chop**  
Roast, Broil,  
Panbroil, Panfry

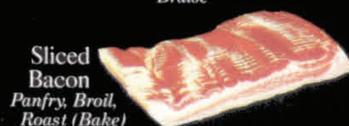


**Canadian-Style Bacon**  
Roast, Broil, Panbroil, Panfry

## LOIN



**Spareribs**  
Roast, Broil, Cook in Liquid,  
Braise



**Sliced Bacon**  
Panfry, Broil,  
Roast (Bake)

## SIDE



**Cubed Steak**  
Braise, Panbroil, Panfry



**Pork Pieces**  
Braise, Cook in Liquid



**Cubes for Kabobs**  
Broil, Braise



**Ground Pork**  
Broil, Panbroil,  
Panfry, Roast (Bake)



**Sausage Links**  
Braise, Panfry, Roast

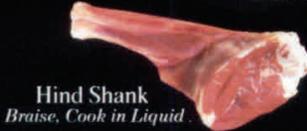
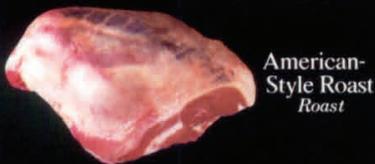
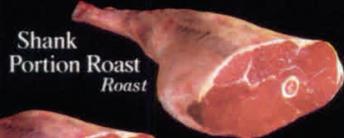
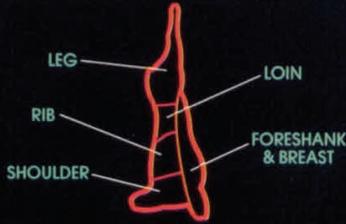
## OTHER CUTS

THIS CHART APPROVED BY  
NATIONAL LIVE STOCK & MEAT BOARD

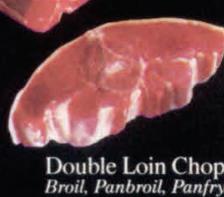


# Lamb

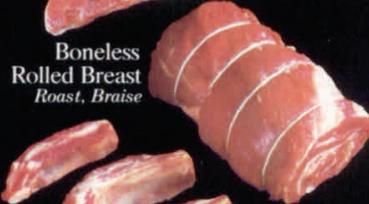
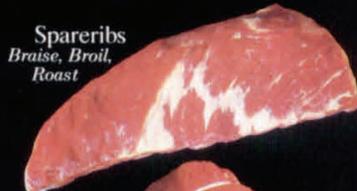
• RETAIL CUTS •  
WHERE THEY COME FROM  
HOW TO COOK THEM



## LEG



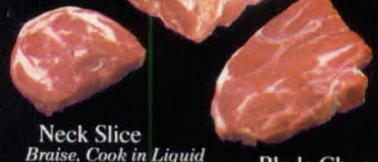
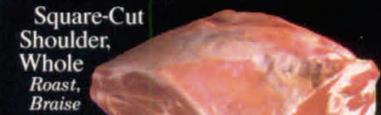
## LOIN



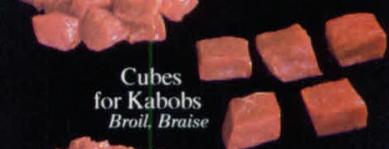
## FORESHANK & BREAST



## RIB



## SHOULDER



## OTHER CUTS

THIS CHART APPROVED BY  
NATIONAL LIVE STOCK & MEAT BOARD



# "Is it *done* yet?"

You can't tell by *looking*. Use a **food thermometer** to be sure.

## USDA Recommended Safe Minimum Internal Temperatures



Beef, Veal, Lamb  
Steaks & Roasts  
**145 °F**

Fish  
**145 °F**

Pork  
**160 °F**

Beef, Veal, Lamb  
Ground  
**160 °F**

Egg Dishes  
**160 °F**

Turkey, Chicken & Duck  
Whole, Pieces & Ground  
**165 °F**

## IsItDoneYet.gov

USDA Meat & Poultry Hotline: 1-888-MPHotline (1-888-674-6854)

 United States Department of Agriculture  
Food Safety and Inspection Service

USDA is an equal opportunity provider and employer.  
July 2005 • Slightly Revised September 2009

**Print this out and put it on your refrigerator  
to reference when cooking meat at home.**

**Use a food thermometer to check your cooking temperatures!**



## PRE-Evaluation: Burgers, Steaks, and Chops – Looking at Beef, Pork and Lamb

1. How old are you? \_\_\_\_\_

2. Are you...(Select one.)

A Boy

A Girl

3. Are you...(Select ALL that apply.)

African American/Black

Asian

Hispanic/Latino

Native American/Alaskan Native

Native Hawaiian/Other Pacific Islander

White

Other

4. What type of school do you go to? (Select one.)

Public school

Private school

Religious school (Catholic, etc.)

Home school

### Your Science and Agriculture Opinions and Knowledge

5. **BEFORE going through the AGsploration Program**, please **circle** the degree to which you agree or disagree with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree
I like science.	1	2	3	4
I feel that Maryland Agriculture is a part of science.	1	2	3	4
Science is useful for solving everyday problems.	1	2	3	4
Maryland Agriculture is beneficial to me, my family, and my community.	1	2	3	4
When I graduate from high school, I would like to have a job in agricultural science.	1	2	3	4
I can name three jobs in the agriculture industry.	1	2	3	4

6. **BEFORE going through the AGsploration Program**, please **circle** your knowledge level about the topics listed below.

	None	Low	Medium	High	Very High
Maryland Agriculture	1	2	3	4	5
Animals we eat	1	2	3	4	5
Cuts of meat	1	2	3	4	5
Nutritional value of meat	1	2	3	4	5
Meat safety	1	2	3	4	5
Meat cooking methods	1	2	3	4	5



## POST-Evaluation: Burgers, Steaks, and Chops – Looking at Beef, Pork and Lamb

### Your Science and Agriculture Opinions and Knowledge

5. **AFTER going through the AGsploration Program**, please **circle** the degree to which you agree or disagree with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree
I like science.	1	2	3	4
I feel that Maryland Agriculture is a part of science.	1	2	3	4
Science is useful for solving everyday problems.	1	2	3	4
Maryland Agriculture is beneficial to me, my family, and my community.	1	2	3	4
When I graduate from high school, I would like to have a job in agricultural science.	1	2	3	4
I can name three jobs in the agriculture industry.	1	2	3	4

6. **AFTER going through the AGsploration Program**, please **circle** your knowledge level about the topics listed below.

	None	Low	Medium	High	Very High
Maryland Agriculture	1	2	3	4	5
Animals we eat	1	2	3	4	5
Cuts of meat	1	2	3	4	5
Nutritional value of meat	1	2	3	4	5
Meat safety	1	2	3	4	5
Meat cooking methods	1	2	3	4	5

7. As a result of participating in this activity, tell one new thing you will try or one thing you will find information about.

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## SUPPLEMENTAL - Evaluation: Burgers, Steaks, and Chops – Looking at Beef, Pork and Lamb

**Directions:** If you are teaching more than one lesson plan in one day, you may attach this to the pre/post evaluation form for the other lesson you are teaching. Please have the student fill out these during the pre and post evaluation times. In addition, only have the student fill out the post evaluation questions Q5 – Q7 at the completion of all lessons.

### PRE-Evaluation

**BEFORE going through the AGsploration Program**, please **circle** your knowledge level about the topics listed below.

	None	Low	Medium	High	Very High
Maryland Agriculture	1	2	3	4	5
Animals we eat	1	2	3	4	5
Cuts of meat	1	2	3	4	5
Nutritional value of meat	1	2	3	4	5
Meat safety	1	2	3	4	5
Meat cooking methods	1	2	3	4	5

### POST-Evaluation

**AFTER going through the AGsploration Program**, please **circle** your knowledge level about the topics listed below.

	None	Low	Medium	High	Very High
Maryland Agriculture	1	2	3	4	5
Animals we eat	1	2	3	4	5
Cuts of meat	1	2	3	4	5
Nutritional value of meat	1	2	3	4	5
Meat safety	1	2	3	4	5
Meat cooking methods	1	2	3	4	5